

USEFUL AND PRACTICAL
OBSERVATIONS
ON
AGRICULTURE.

WITH SOME ESSAYS ANNEXED,
ON
INCLOSURES,
The IMPROVEMENT of the COUNTRY,
AND
THE POOR.

By a CLERGYMAN.



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USEFUL AND PRACTICAL

OBSERVATIONS

ON THE AGRICULTURE

INTRODUCTION

WITH SOME ESSAYS ANNEXED



By J. G. M. A. M.



CONTENTS.

I	INTRODUCTION	Page	I
	ON FARMS		13
	The Team		17
	On Instruments of Husbandry		29
	The Plough		31
	Harrows		36
	A Heavy Roller		38
	On Manures		42
	On Cropping		51
	On Turneps		56
	On Coleseed or Rape		70
	On Barley		78
	On Clover		92
	On Wheat		108
	Calculations on Expence and Profit		123
	On Beans		132
	On Pease		137
	On Rye		141
	On Oats		144
	On Vetches, or Tares		147
	On		

On Grasses	-	-	Page 151
On Water Meadow	-	-	159
On Natural Pastures	-	-	162
On Artificial Pastures	-	-	166
On Marle Grass	-	-	171
On Rye Grass	-	-	174
On Dutch Clover	-	-	176
On Saintfoin	-	-	177
On Trefoil	-	-	182
On Lucerne	-	-	183
Observations on the Farmer's Stock.			
On Cows	-	-	188
On Sheep	-	-	192
On Hogs	-	-	194

E S S A Y S.

I. On Inclosure of Common Fields	}	198
and Waste Land		
II. On the present improved State of	}	210
the Country		
III. On the Poor	-	216

26 FEB 66

ON

AGRICULTURE, &c.

INTRODUCTION.

THE great attention deservedly paid to Agriculture for some years past, and the favourable reception shown to every treatise on that subject, which promises improvement, engage me to offer to the public the result of my observations and experience. It affords me a winter evening's amusement to correct and arrange the materials, and should it in anywise conduce to the benefit of mankind, the labour will not be in vain.

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Too

Too many have already obtruded on the world their pretended discoveries, with promises of vast advantage to those who should adopt their several systems; but such as followed their directions, were soon awakened from their golden dreams, and reaped only loss and disappointment, by absurd, ill-directed, or expensive experiments.

A few, and but a few, really practical farmers have recorded the result of their own experience, and thereby have worthily advanced the science of agriculture; nothing tending more directly to its improvement, than exact and faithful registers of trials, made by different modes of culture—in different soils—with a true statement of the whole expence incurred—the produce of the land—with impartiality comparing both with the common husbandry of the country, and fairly stating the real profit or loss.

I profess

I profess myself no enemy to experiments. I wish the wealthy and the curious to multiply them; they can afford the loss which is generally incurred: and some useful hints may be suggested by them, which may be of singular use, and capable of being generally adopted; but I would advise the farmer to be cautious how he leaves the beaten track in which his ancestors have trod, where the success is morally certain, though the gain be moderate. However willing to hear reason, to correct customs evidently absurd, or to adopt methods clearly proved to be, on a large scale, practicable and beneficial, he will wisely wait the confirmation of boasted improvements, by his richer neighbour's experience, before he ventures any alteration in his accustomed and familiar mode of culture.

That farming in general is the very

lucrative business some have affected to represent it, I am far from being convinced. Within the circle of my observation, it is so far from truth, that the farmers are accumulating wealth, that few, very few, do more than pay their rent, maintain their stock, and support their families: whilst many in the present difficult times have proved unable even to do this, as their landlords too well know. The unremitting labour and care of the industrious, (and surely no set of men in the kingdom are more constantly and diligently employed) will no doubt in some instances (where no providential losses, which are frequent, in damages of crops, or death of cattle, intervene) add something to their store, and enable them to settle a son or a daughter out of their pittance; but I will venture to appeal to impartial observation, whether, with an equal capital, in almost
any

any kind of merchandise or manufacture, ten do not gain a fortune in trade, for one who raises it from the plough.

The earth affords nothing but by assiduous and laborious culture; and, after the expences of rent and cultivation are deducted, the balance will be found much more inconsiderable, than hath been supposed and asserted by theorists, who have pretended to give directions, that can only deceive and impoverish; or by the writers in favour of manufactures, who, having never handled a plough or a spade, are utterly ignorant how hardly the farmer earns the bread he eats.

I have also often heard this most useful set of men illiberally treated, as stupid and obstinate: a real acquaintance with them will be a complete confutation of such abuse. I will venture confidently to affirm, that were any experiment proved to be attended

with success, to make two grains of wheat grow, where there used to be but one before, every farmer that I know, who saw the process, and was able to execute it, would with delight adopt the improvement. They ought at least to be allowed the common sense of mankind, and not be supposed incorrigibly blind to their own real interests.

If I should add little to the fund of agricultural knowledge, (though I wish to cast in my mite) I certainly mean not to mislead. I shall faithfully record my own experience. I have for many years occupied my own glebe, which is an inclosed allotment, not without some expectations of advantage, but chiefly as an amusing occupation, at my intervals of leisure: nor have I been disappointed; the inspection and attention have entertained me; and while I have seen the land ameliorated,

florated, it hath repaid the expence and care with interest.

I cannot however advise any gentleman, who is not constantly resident on the spot, and who would not delight to spend a good portion of his attention in inspecting his own affairs, to attempt farming; at least no farther than for the supply of a family, in those articles immediately necessary for the use of the house or the stable. I will venture to say, scarce any person, unless under such circumstances, ever made the attempt but at a considerable loss. If the man who rises before the sun, and who is the last to quit the field, often complains of the negligence, idleness, or fraud of his servants, though his eye is so continually over them—himself animating them by his presence—and often by his labours—whose expences are few as possible—and his whole attention fixt on one object;—

if he does little more than pay his rent, and subsist his family, what can be expected, when the master's eye is absent—where servants wholly manage—where expence is often needlessly incurred—and want of care necessarily leads to a variety of losses and accidents, which, however they may be treated severally as inconsiderable, (tho' some of them perhaps are far from being so) at the end of the year increase amazingly the debtor side of the account?

In every country there are some peculiar methods of culture, and generally that which is the common practice is best. The experience of ages past should no more be wantonly departed from, than evidently real modern improvements be neglected.

In open fields every man is almost necessitated to follow the established course of cropping: and in many of

our

our new-inclosed farms, which continue under the plough, he will find it probably most advantageous, not to deviate too much from the antient rule; the introduction of the clover crop into his course of husbandry being the most material alteration.

I have observed in the new inclosures in my neighbourhood, how much injury hath been incurred by the covetous desire of too many crops in succession. Without the intervention of a fallow, for wheat or turneps, once in four years at least, the land will be beggared, and the produce insignificant.

From land, that for a long while hath been common, or pasture, called *new land*, in contradistinction to that which had been usually under the plough, some persons on inclosing promised themselves a long succession of profitable crops, but were sorely disappointed; for though oats or barley

succeeded well, wheat greatly failed, and the quantity of straw, though vast, brought no proportional produce of grain. After a second or third crop the land grew so foul, it scarce returned the seed, and nothing but a fallow would effectually clean it. I mention this as a warning. Many farmers are apt to covet too many acres of wheat-land, because of the superior price of that grain ; but land, which will bear five or six quarters of oats, or four or five quarters of barley, will be more advantageous to the owner, than if it bore two quarters of foul wheat, and overrun with weeds.

After trying some experiments that seemed well recommended in the way of the drill husbandry, and never succeeding with any advantage, which would encourage a repetition, I have been contented to pursue, with little deviation, the common methods of culture ;

culture ; and shall be hardly engaged to make new trials, till I see, on a large plan, the success confirmed in this country. The produce of an inconsiderable spot, cultivated at a vast expence, will never be a proper precedent for a common farmer. I shall be content, if, in pursuing the general method to which he is accustomed, I can suggest some useful hints, either for lessening his expence, or increasing his produce.

As I pretend to no extraordinary discoveries, I shall not at least deceive by raising absurd expectations, nor tempt to costly trials, which end in disappointment. I cordially wish every brother farmer may reap more abundantly the fruit of his toils ; but must repeat my persuasion, that farming will seldom raise a fortune, though, where properly managed, it may afford a pretty certain and comfortable subsistence.

It would be a vast advantage to the kingdom, and to the landholders, could some method be fallen upon, generally satisfactory to the clergy, in lieu of tythes: thousands and ten thousand acres lie uncultivated, which would in that case immediately yield a plenteous harvest; but the expence of reclaiming them is so great, that the burden of tythe added thereto, renders it more the owner's interest to let them lie almost an unprofitable waste. As being honoured by admission into their order, I respect the rights of the clergy, and wish them to suffer no diminution; whilst for the sake of my country, and its prosperity, I cordially wish every possible encouragement might be given to promote the interests of Agriculture.

ON FARMS.

FARMS consist either of grass-land, or arable, or both. The former is usually the most profitable to the occupier; but the ploughed farm, I apprehend, most advantageous to the community. The produce of an acre under culture, being considerably larger than when lying in pasture, the greater number of persons necessarily employed thereby, must occasion also a proportionably greater consumption of all taxable commodities.

Though grazing comparatively requires less expence of labour, it demands a greater capital in stock. The wealthiest of our yeomen, therefore, suppose they can thus most profitably employ their substance, and make the most considerable returns; and I have observed,

observed, that though few plough farmers accumulate much wealth, the grazier often doth. Hence most of our newly-inclosed lands are laid down in seeds; the Farms of a whole parish, which before provided employment and support for numerous families, and day-labourers, fall into the hands of one or two of the most wealthy; the want of employment compels many to migrate; settlements are gained with greater difficulty; marriage is discouraged among the poor, and depopulation necessarily ensues. It is true, that the landlord finds his advantage in a considerable increase of rent, and more easily collected from a few of the wealthiest farmers; but I fear the loss to the community in general greatly overbalances the advanced rent-roll.

Inclosing all commons, wastes, and heaths, and draining morassy land, cannot be enough promoted; but to inclose

close productive, well-cultivated arable, merely to turn it into pasture, must, I am persuaded, be attended with national disadvantage.

A proportion of grass-land in every Farm is highly desirable. Manure is essential to the produce, and a good stock of cattle necessary to make it. One acre well managed, folded or mucked, will equal in produce two that are poor and out of heart, whilst the expences of labour on the poor land are doubled.

How large a Farm should be, has been often disputed. It seems pretty clear, that as much land, as can be well managed by the strength a farmer hath, and the capital he can employ, will be advantageous, provided it doth not exceed his ability of superintendence; for the master's presence, attention, and care, is of essential consequence. Yet herein humanity must plead

plead against monopolizing, and the great hardship of turning old tenants adrift to seek new abodes.

Certain it is, the fewer buildings there are to support and repair, the better it must be for the landlord; and that an increase of the quantity of land hired, will not proportionably increase the expences of the tenant; as many of them would be the same, whether he occupied much or little; besides that the smaller Farms do not all the year afford the same constant and regular employment for the team: large Farms, therefore, to the amount of two hundred pounds a year or upwards, where the rent is above ten shillings an acre, and from one hundred to something higher, where it is less, seem to promise the most beneficial produce to the occupier. The little farmers, who occupy small parcels of land, generally want strength of cattle to thoroughly culture

culture and manure their ground; and though the work, which they may perform themselves, may be supposed more vigorously executed than by a hireling, yet without proper stock and a good team, the greatest industry will be scarce sufficient for this purpose.

To occupy an arable Farm to advantage, the first and most essential necessities are—the Team—the Instruments of Husbandry—and the Manure.

I. THE TEAM.

A Good Team, whether of horses or oxen, is of the most essential consequence; and be sure, let your strength of Team be rather *above*, than *beneath* your work. Nothing is worse economy, than the attempt to execute your work with fewer cattle than the quantity of the land, and the nature of the
foil

soil require; for not only by pressing the Team too hard, you are very liable to bring on your horses dangerous disorders, and often fatal, but the tillage is also left too superficial, and the ground too little pulverized, by which the crop cannot but be greatly injured. Even without the absolute loss of your horses, their poverty, and the injury they receive, diminish their value: their weakness requires two where one good one would have been of equal use; and a poor worn-down horse eats as much as a better. Thus whilst the value of a weak Team is declining daily, a strong one loses scarce any thing, and if the horses are young, continues increasing in value.

Three good horses, except in the very lightest soils, are necessary for every thirty or forty acres of arable land; and if it be a deep clay, somewhat more in proportion.

A master's

A master's attention is no where more profitably employed, than in observing that his team is properly fed, and well taken care of; and this not merely to guard against neglect, but to proportion their allowance to their work. I have frequently observed very needless waste of provender, and the horses little benefited: many carters think they can never give them too much. And note! in this, as in a variety of other articles, a farmer's greatest gain is in preventing needless expence.

As much as possible, avoid letting your horses grow old upon your hands. Perhaps a brood mare, a very steady horse or two, or a blemished one, whose value is inconsiderable, may be worth keeping till they are worn out; but the chief of your cattle should be under seven, that after working them

two

two or three years, they may go off in succession, and be replaced by colts. This is often a very profitable part of farming, where good horses for the coach or waggon may be sold from the Team, and considerable advantage gained beside their work.

The cheapest and best mode of keeping horses all the summer, is to cut for them green fodder. It will abundantly repay the trouble, whether it be clover or grass, to have it mowed, and given them in racks in the stable, or yard. They produce thereby a great increase of manure, which is lost and almost useless, dropped in the field. One acre of land thus foddered will go farther than two fed. The horse's hoof destroys nearly as much as his mouth; not to mention how often the poor animal tied to a tether is half pined, because the food is soiled almost

most the first turn he takes, and the greatest part of it soon trod into the ground.

Grudge not your working horses good hay; they earn it. None more acceptable and nutritive than clover, and I may venture to say, none so cheap.

If you feed them with beans, let them be split at the mill; they are more grateful—more nutritive—and consequently will go farther, mixed with bran or chaff; plenty of which should be cut every afternoon, because the fresher, the more palatable. The ploughman will have sufficient time for this when he brings his team home from their work.

It is amazing, in the present improved state of agriculture, that in Cornwall, and I believe in many parts of Devonshire, a chaff-box is utterly unknown;

unknown ; and not only their barley-chaff, but their wheat-chaff also, is left at the tail of their winnowing, and cast away, as refuse and useless, though in no county is winter fodder more needed.

Every good farmer should have a dry covered place contiguous to his stables, for the reception of every handful of his winnowed chaff.

It will be highly worth every man's attention, to take care that no blacksmith be suffered to use so unmercifully his abominable buttress on the horse's feet. The frog of the foot should never be meddled with, but merely to remove any ragged part ; and if the shoe be properly made to the foot, there will be no need of cutting the foot to the shoe : shortening the toe a little, when it grows too long, is all that is necessary. It is amazing how many

many horses are lamed and ruined by the injudicious application of that instrument.

Beware of farriers, and phyfic. I know no more ignorant set of men, equally unacquainted with anatomy and the animal oeconomy. Where a human person can describe his complaints, every honest phyfician knows how difficult it is to determine the cause, and how uncertain the effects of medicine : how much more in an animal incapable of giving the least information ! It is true, sometimes the cause and effects may be apparent : if he hath been overheated, breathes hard, and is feverish, bleed him ; but not, as I have seen done, for a sprain in the shoulder ; — if he is strained and lame, some old verjuice, rubbed well on the part, and a poultice of oatmeal, oil, and vinegar, with rest, will do more than all their boasted oils and charges ; — if any swelling threatens

threatens to gather, and produce matter, nothing is better than a poultice of mashed turneps;—for a common pinch or warble, salt and water.

Remember, whenever it is necessary to bleed your horse, never do it on the ground, as it is impossible in this way to judge of the quantity of blood proper to be taken away: receive it in some vessel, to the amount of three pints or two quarts, according to the size of the horse.

You may also hereby form some judgment of the state of the blood; for if it be much inflamed, it will have a thick crust, like glue, on the top, when cold; and this usually indicates the necessity of a repetition of the bleeding, if the horse still loaths his food, and seems not relieved.

The common mashes of scalded bran or ground malt, are too well known almost to need mention: a very little
attention,

attention, in most cases, will enable any man to be his own farrier, with the greatest benefit to his cattle, and a certain saving of expence.

As the health and vigour of the team, and not the sleekness of their coat, is a farmer's great object, I should never wish them to be confined in a close stable: when heated with work, it is sufficient to let them cool under cover, while they are fed, in winter; and in summer the sun dries, and the open air cools them better than the stable, if led about a while, and then well rubbed.

I am strongly persuaded, that instinct, in general teaches every animal what is most conducive to its health and comfort, and that to act in contradiction thereto, will be but an attempt to mend their coats at the expence of their constitution. I have the fullest conviction, in many of the disorders

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incident

incident to the human body, that importunate cravings should be complied with. I should not hesitate in a fever to give my dearest friend cold water or small-beer, if he expressed a longing after them, nor object to exchange the heat of bed-cloaths for an exposure to the open air.

If the air, and an open exposure, were not highly grateful to a horse, he would not assuredly chuse it. In a day of rain, and during a fall of snow, when the stable is well littered, and the rack full of hay, how often have I observed my horses, after they have fed themselves, refuse the cover, and turn their backs to the storm! an evidence to me, they felt no inconvenience from it.

If gentlemen could be content with the roughness of their coats, I have no doubt but they would find their coach-horses,

horses, yea, and even hunters, succeed with this management.

To what an expence in grooms, horse-doctors, and annual physic, are many gentlemen led ! Their horses are every year regularly bled, regularly purged : Can the beast need it more than his master, without some evident disease ? But they say, he would be foul, run at heels, &c. if they did not physic him. True, if nature be crossed, and overloaded, she will attempt to relieve herself from the accumulated collection of humours. Shut up in a stable—covered with rugs and body-cloaths—fed to the full—occasionally in very warm exercise—then for many hours immoveably fixed in a stall—how can it be, but that disease and the doctor be the necessary consequence ? Even the most careful and expensive attendance of helpers and stable-boys, to rub them for hours, and walk them

out every day, is but a poor succedaneum for general liberty; which would keep them in better health, without half the expence.

I knew a gentleman who thus treated his stud of coach and saddle horses, indulged them with the free use of their legs and the open air, suffering them to chuse their place of rest and abode, either in the stable or the yard; in the former of which, though well littered, they never laid down. In fourteen years he never lost a horse by disease or accident—during the whole time, never paid five shillings for physic or a farrier—and, as he has assured me, was scarce ever interrupted in the use of them for a day, by any of the disorders and disasters so common to that animal.

Horses out of doors will live much hardier, and eat what in the stable they would refuse. The very breath of these creatures, (who are remarkably
nice

nice in their smell) and the ammoniacal effluvia of their urine and offals, must taint their food. Whoever opens the stable-door in a morning, must be strongly sensible of this. Hence the waste of fodder often made, and the necessity of fresh hay, and removing what is yet unconsumed out of the racks, unless perhaps it is pulled under the horses feet, mixt with the litter, and sent to the dunghill.

2. ON INSTRUMENTS OF HUSBANDRY.

THE instruments of Husbandry in common use should be such as are most simple in their construction—easy to manage by any common servant—capable of being made and repaired by the carpenter, plough-wright, or blacksmith of the village—at the least

expenditure, and endued with sufficient strength and durability.

A variety of new and complex machines have been offered to the public, and considerable premiums paid by agricultural societies for some of them; which, however ingenious in their construction, and useful under peculiar circumstances of the soil, or for a particular culture, can never be adapted to general use: not so much, as has been asserted by the advocates for them, from the stupidity and obstinacy charged on common farmers (who, by the way, are certainly as clear-sighted in judging what will be for their real advantage as any other set of men) but from their inutility. Either their servants are incapable of properly managing them—or the original expense and occasional repairs are more than the benefit they would produce—or the instruments already in common use,

and with which their servants are familiar, equally answer every good purpose of Agriculture.

The first and most useful of all instruments to the farmer is

THE PLOUGH.

OF all the different sorts of this instrument which I have seen, the common swing plough appears to be the most generally useful, the construction of it most easy, and the expence and repairs of it the least.

The strength and size must be determined by the nature of the soil, and the time of year. For a spring fallow, a stronger beam and share are required, for a stirring, or seeding, a lighter one. This is the plough in general use in this county, Northamptonshire; where the management of land is well understood, and the crops, on

an average, I believe, equal to any in the kingdom.

I attempt no description, nor annex plates, as both are superfluous: one moment's inspection of the instrument itself, which is so common, and easily to be procured, conveying a more adequate idea, than can possibly be communicated any other way.

There is a great variety of ploughs in use; some exceeding light and short, drawn by a single horse, peculiar to the light sands of Norfolk; others of most unwieldy construction, both with wheels and without; the turnwrist, the double-share plough, and others; and there may be peculiarities of soil, which from experience may render these preferable. But from the observations I have made in different counties, the common swing plough, with the addition of a foot, or a single low wheel in its stead, when necessary, seems to me,

me, in general, to be the simplest, lightest, cheapest, and proportionably the strongest; and might, I am persuaded, be adopted with advantage in many more places, than at present make use of it.

The perfection of a plough is to carry a clean furrow, turning the seam that it may not fall back into the hollow, nor leave ribs, or raise baulks. The width and depth of each seam the ploughman regulates by the iron cock.

It is a general rule to break up the fallow in as deep and wide a seam as the soil and team will bear; the feeding furrow and the stirrings should be more narrow and superficial. The upper stratum being always most impregnated with vegetable food.

The strength and tenacity of the soil must determine the number of horses necessary for the plough. Two horses, and sometimes even one, in the very

light sands of Norfolk, are found sufficient. In our deep clays three could not carry the fallow plough through a rood. Six horses double, with a plough suited to their force, are often barely sufficient, when the fallow is very dry and parched; in which state, the land receives the greater benefit, when well broken up.

I have heard it confidently asserted, that two or three able horses, at the farthest, are sufficient for any plough. I know the contrary, and would never advise a farmer to urge his cattle beyond their real strength. You will always plough most and best, when the team moves freely, without any extraordinary efforts, in a steady uniform pace. Every person will, no doubt, desire to plough at as small an expence as he can, consistent with the nature of his work; but it will be ill-judged economy to spare a horse where the draft

draft is heavy. The team which is completely master of its work, will be found the most profitable, and the additional expence of a horse abundantly repaid in the goodness and quantity of the tilth.

After the ground hath been fallowed, fewer horses and a lighter plough will suffice for the subsequent stirrings.

Few teams with us, on an average, plough more than an acre a day. I believe, generally less. Though this is supposed their reasonable day's work.

I have not been able, in theory, to determine why oxen are not more frequently made use of with us for labour, though I have repeatedly seen attempts to introduce them ineffectual, and the experiment laid aside. The article of expence is vastly in favour of oxen.—In counties where they are used, the quantity they plough comes very little short of what horses perform.—If

used single, and harnessed, their proportion in numbers is but as four to three—their food is beyond comparison cheaper—and their value, when they have been worked many years, or lamed by accident, undiminished for feeding.

H A R R O W S.

THESE, like ploughs, must be suited to the soil, and state of the land. Where the tilth is good, light ones are best. In wheat seeding, especially, we wish not to leave the land too fine. A small round clod, if none are much bigger than your fist, serves to shelter the tender shoot in winter, and mouldering with frost and rain, helps gradually to earth up the root.

If the land is stubborn, foul, and full of twitch grass, a heavy harrow, or drag, is of essential service, in order
to

to subdue the tenacity, and shake out the trash. It should follow the ploughing, at the distance of a week or ten days, always and only when the weather is dry, and the tilth will not staple, else it may do more harm than good: and indeed, I observe the same of ploughing; nothing but necessity should ever tempt me to plough wet. The twitch or couch grass, after well harrowing, may be collected with forks or rakes; and sometimes it will pay very well to have boys pick it out by hand in the spring, if the land is foul. A ploughing or harrowing extraordinary, in order effectually to destroy it, where the season will admit, will abundantly repay the expence, by bringing the land into so much better order for the succeeding crop.

A HEAVY

A HEAVY ROLLER.

THIS is an instrument no good farmer would be without ; many content themselves with too light a weight, and thereby lose the chief benefit of rolling. It should be a good draft for two horses, unless the tilth is very fine, when a lighter one, with a single horse, is sufficient.

Wheat, in the spring, especially on the ridges of lands, if laid up high, is very liable to have the soil loosened, and blown aside, and its root laid bare by the frost, which often entirely destroys it. A good rolling, in dry weather, fixes the earth around it, presses it firm into the ground, crushing the clods, which have not entirely fallen in the winter, and prevents the corn from perishing.

Nor

Nor is its use less for barley, grass-seeds, coleseed, and turneps; for as it is often very dry at the time when these are sown, the pressure prevents the moisture of the fresh-turned earth from being exhaled, and thereby promotes vegetation.

I mention not carts, waggons, the winnowing fan, and other well-known implements: observing only, what is often but little attended to, that it is great œconomy, to be very careful, as soon as any of these are out of use, to remove them under proper cover; that they may be protected from sun and rain. More damage often arises from the careless exposure of them to the weather, than from all the use you have made of them.

I have seen a curious winnowing machine, which, I believe, originally came from Scotland; and is said very considerably to shorten the time and labour,

labour, where large quantities of grain are to be winnowed; but, as I apprehend the machinery is somewhat complex, and the expence much exceeding those in common use, I presume it is found on the whole undesirable, or it would ere this have been adopted into more general use.

I say nothing of drill ploughs, and the husbandry attendant on them, as I am persuaded it will never become the common husbandry of the country. Nor do I believe, from the little experience I have had, that it is the interest of the nation that it should; except for pease and beans in particular soils, level, deep, and free from stones. The broad-cast method, for other grains, hath the experience of mankind on its side; and the vigorous efforts, and earnest exhortations, of a few persons to introduce the horse-hoeing husbandry, recommended by Tull and others, have
not

not hitherto gained many profelytes. Some, within the circle of my own acquaintance, who have attempted it, have, after a variety of trials, and continued for several years, desisted, and returned to the old method of broadcast: nor have the most intelligent farmers been hitherto induced to adopt a process, of the good and sure effects of which they have not yet received conviction.

I may, with many others, be counted among the obstinate, by the zealous advocates for the drill and the hoe; but I must confess myself, after some unsuccessful trials, among the dissentients.

3. ON MANURES.

AFTER the best and most laboured tillage, to ensure the success of the crop, manure is of the last importance.

Some have affected to treat manures as of little necessity, and to rest their confidence of success on the plough, the harrow, and the hoe: but without something thrown in to restore the vegetative powers, of which the crops have robbed the land in a measure, it will be beggared under the highest culture. Nothing so surely repays the expence, and ensures the crop, as liberal manure.

Among the first and best of which, we may justly reckon *the Fold*.

Nothing produces so certain a crop of wheat, barley, turnep, or coleseed,

as the fold. In those inclosed lordships, where the fallow flock is nearly annihilated, the want of it is exceedingly felt. For the crop immediately sown upon it, no manure is to be compared with it: and this astonishes me, that in Cornwall, and I believe most parts of Devonshire, (and perhaps other counties I am less acquainted with) though they have very large commons, keep abundance of sheep, and have great scarcity of yard-dung, they never fold them; and only of latter days are abandoning the barbarous custom of milking their ewes after the lambs are weaned. They have hardly any where in that country a good farm-yard for their cattle; but leave them in winter, as well as summer, to wander about their naked fields, by night as well as day, to their great impoverishment, and the total loss of their dung.

The *Farm-yard* is the next great
fund

fund of manure : a good stock of lean cattle and in-calvers in winter, will not only pay well for the straw they consume, but be highly necessary for raising a muck-heap.

If the farm affords plenty of hay, beyond the consumption of the horses and milch cows, it may be very profitably employed in fattening beasts in stalls ; by which means a great accession to the heap will be made.

I would just observe in this place, that beasts kept on hay during the winter, should be bought in nearly fat, as hay alone will not otherwise bring them out well in the spring, and provender is very expensive.

I may add, where hay can be sold, supposing plenty of meadow in the farm, nothing pays so well : if it is above forty shillings a ton, no fattening beasts in general will pay so much. If landlords, instead of obliging their
tenants

tenants indiscriminately to expend all their hay in fodder on the premises, admitted the sale of a part, at least in years of plenty, on condition of purchasing so many loads of dung, or hundreds of rags, for every load of hay sold, the land would be no loser, and the tenant often a considerable gainer.

Many farm-yards are so ill contrived as to lose, on every heavy downfall of rain, a considerable part of the best manure, which is washed into the streets; to prevent which, there should be a pond in the yard, to which the ground on every side should decline: this will be a receptacle for the liquid parts of the manure, and may be either carried out in that state, in a watering cart, on the grass-land; or, if the pond is dry in summer, it may be cleaned and carted out.

Preserve your *wood and coal-ashes*; let them be kept dry and under cover, as
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the rain spoils them: mixed with your hen-house dung, or with the cleanings of your dove-cote, or alone, they are an excellent top-dressing in spring, either on your wheat or barley. The effects of it will be very visible to the eye, in the dark hue and luxuriant vegetation of the corn, within a fortnight after the first rain has washed it into the ground. From twelve bushels to two quarters, or more, will be necessary, according to the heart in which the land may be. It should be sown by hand, out of a siblet.

Soot also, if you can procure it in any quantity, at six-pence a bushel or under, is of singular use in spring, and well worth fetching some miles: about the same quantity on an acre is sufficient.

Marle, in many counties, is the great fertilizer. Good marle is unctuous and soapy—fermenting strongly with vinegar—

gar—when dry, falling into an impalpable powder in water—and sending up briskly a number of air-globules as it dissolves. It is of various colours; but that of a bluish cast, that shivers in the pit into thin flakes, is esteemed the best. Very large quantities of it should be laid on, to the amount of from forty to sixty loads on an acre, which will last in its efficacy for a great many years.

I have seen land, let on lease for a shilling an acre, manured with marle at the astonishing expence of seven or eight pounds an acre. But as it makes quite a new soil, and is very enduring in its effects, it amply repays the first expence.

Lime is, in many places, the chief manure, where coal is cheap, the stone at hand, and the quantity requisite can be well afforded. An acre requires
from

from one hundred to an hundred and fifty bushels.

A sensible farmer, who made some experiments with lime, in a county where it was little used, assured me, that he thought it exhausted the vegetable food of the land, and though for twice or thrice it threw out rich crops, the land was left very much impoverished. But the constant and general use of lime in many places, demonstrates that no such effects are there felt or apprehended, and makes me wish it might be more generally tried, wherever it can be procured at a reasonable rate.

Similar to this, but in efficacy inferior, is *Chalk*.

In some places their principal manure is *Sea-sand*; the prolific quality of which arises not, I apprehend, as many have supposed, from the saline particles

particles it contains; but, what is called sand, is really, for the most part, a congeries of shells, beaten small by the action of the waves, and in fact an excellent kind of shell marle: and this is manifestly the case with some I have seen drawn up, or, as they term it, *dradged*, with a machine, out of arms of the sea, in Cornwall, and conveyed in barges to considerable distances. The quantity, however, of this, compared with other marle, to be laid on an acre, is small; it being generally formed first into a compost heap, with equal quantities of dung, and common earth dug from under the hedges: this is well turned over and mixed together, and then carted on the land.

Old rags—clagg-locks—sheeps trotters—hoofs—horn—in short, every thing animal, when putrefied, is highly useful. The first can often be procured in considerable quantities, from

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half

half a crown to four or five shillings a hundred weight: they must then be chopped small, and scattered out of a siblet, from four to five hundred weight on an acre.

Every sort of manure should be immediately *spread* on the land as it is laid, and not be suffered to abide in heaps, lime and chalk excepted; and if carried on in summer, it should, as soon as possible, be *ploughed in*, as, if it is spread, exposed to the sun, it loses many of its most valuable particles, which, mixed with the soil, would occasion a salutary fermentation, and mellow the tilth to receive the seed. In winter the spreading is sufficient, as the rains and snows will wash it into the ground.

Lime should be spread fresh from the kiln, and when dissolved thoroughly, be ploughed in.

Manure well, as far as your quantity
holds

holds out : rather trust the best of your tilth without any, than, by dividing it for all your land, run the coat of dressing too thin ; for a very slight manuring of arable is but of little efficacy, whilst a good one will be long remembered ; and by dressing a part well on every turn, the whole will in time be brought into good heart.

ON CROPPING.

THE necessary preparatives being thus made, the next consideration is the crop, and the proper succession.

The nature of the soil must determine what course of cropping will prove generally most beneficial—preserve the land from being too much exhausted—and make the best return.

It is generally agreed, that successive crops of white grain impoverish the

ground, and fill it with weeds, not admitting the culture necessary to destroy them; though in some counties two, nay three crops of white grain, as wheat, barley, and oats, are taken successively, and the land, thus exhausted, laid down in grass for two or three years, to be rested: the consequence of which usually is, that the latter crop is very poor—the seeds do badly—the land is impoverished—and filled with weeds instead of grass.

Between every crop of white grain, except in some very peculiar soils, there should always be a fallow—clover—a hoed crop of turneps—coleseed—or beans. The best husbandry will introduce a fallow every fourth year; none should exceed a fifth.

If the land be heavy, wettish, and apt to poach, turneps are not suited to it; but beans on such strong land succeed well.

Either

Either of the following modes of succession will in such land succeed :

Fallow,	Fallow,	Fallow,
Barley,	Wheat,	Barley,
Clover,	Beans,	Beans,
Wheat,	Barley.	Wheat.
Beans.		

The first of these I prefer as most profitable, if the land does not grow too foul.

Whenever the beans precede a crop of white grain, they should be drilled and hoed, to clean the land, and keep the soil more divided; and I advise to hoe, even if they are sown broad-cast, though in this country they content themselves with putting on their sheep, when the beans are shot above-ground: they pick out the weeds, but will not hurt the beans; but this is I fear of little benefit.

In lighter soils, on gravel, sandy, lime-stone, and the convertible lands,

as they are called, turneps—barley—clover—wheat—form the most advantageous succession; and, with the least expence of culture, generally bring the most considerable returns.

It is of importance, that the mode of culture pursued be such as to provide full employment for the teams during the whole year, a little rest being allowed after seed-time, when harder work lies on them, than at other seasons.

I would advise also, that no greater quantity of land be ever cultivated, than can be well cultivated. I am sure a farmer will, in the end, gain more, by losing a year's rent in a fallow, than by sowing, where the land is not in order. One acre, well managed, will produce as much as two that are foul and impoverished; and half the seed, and nearly half the expence of labour, are saved.

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I would hint also, that I have uniformly observed, for many years past, the great advantage of sowing early : where the soil has been equal, and the management in no wise different, the produce has been much in favour of the early-sown grain. It gains strength, if a winter crop, before the severe frosts set in, and having taken firm and deep root, is less liable to be destroyed ; and if a spring crop, by being sowed early, it covers the ground, and keeps in the moisture, so that the summer's drought does not so much affect it, and check vegetation : not to mention the evenness of the crop ; whilst the late-sown is sure to come up in patches, if the weather proves dry, and a part lies buried under the clod, and does not vegetate, or cannot struggle through the hardened surface.

Only it must be observed, that your clover-feed should not be sown too

soon: it may be harrowed in with the latter-sown barley; but if the first-sown be shot out before the clover is put in, pass the light roller only over it, as the seed is generally sufficiently hilled, or covered thereby, being so small.

In the convertible lands, the following succession of crops I would recommend, as producing the best returns with the least expence of culture.

I. TURNEPS.

PREPARE for your crop, by breaking up your stubbles before Christmas, or immediately after. The frost and snow have by this means easier admission to take hold of the land, divide, and mellow it.

Ridge it well up, and let there be a clear water-furrow, to drain off the wet
which

which falls, as fast as possible. Standing water on the land is very hurtful. Make open drains, either with the plough or spade, to the most depending part of the field. The drier the tilth is kept the better.

As soon as your seed-time in the spring is over, or before, if weeds begin to vegetate strongly, give your tilth one tine or two of the heavy harrow. About ten days or a fortnight after, if you can, but at least some time in May, plough again, and raise as good a depth of earth as the soil will admit, casting down the land and cleaving the ridges: be careful only not to go too deep, to turn up the cold under-stratum, which would do more hurt than good.

If the weeds are not subdued, and push again, give another tine of the drag harrow; for it cannot be too often inculcated, that to keep the land

clean is the first object. You had better much, contract the quantity of arable, and lay a part of the farm down in grass, than attempt more than you can thoroughly cultivate. Endeavour to plough dry. Better let your team be idle, than to work in the wet ground. The land stanches, if it is at all tenacious, and the weeds take root, and vegetate as bad as ever, so that you have all your work to do over again. Farmers, when they set in for ploughing, often go on wet or dry; but I am very sure, by so doing, they frequently do themselves much more harm than good.

Your muck in winter, during the frost, should be carried to an heap, as near your fallow as you can, that it may be ready to be laid on the land the quicker, when time is precious; but if your yard be near your fallow, it may be sufficient to throw up the dung

to ferment and putrefy, and save the expence of double carting.

As far as your fold extends, nothing more will be wanting. The rest of your fallows should be mucked, and well mucked, if you would reap a good crop: twenty load, at least, to an acre, or more, if you can raise it. Not one crop, but four, are to receive benefit from it.

Spread the manure as soon as it is carried. If it lies any length of time in heaps, the ground is manured unequally by what drains from the heaps, and the crops come in tufts.

It should also be ploughed in as soon as possible after it is spread, as the summer's sun will otherwise exhale some of its richest particles, which mixed well with the soil during its moister state, add greatly to its fertility. Some farmers, very imprudently and carelessly, spread their muck, and let it lie for months on their fallows, thinly ex-

posed to the scorching heat, till more than half its efficacy is evaporated.

Be sure not to be too late in your seeding. Most persons sow at twice, that they may have a succession. The latter end of June, or the beginning of July, your turneps should be in the ground. They have a much better prospect of success then; as I have observed there generally falls about the end of June, some heavy showers, and the quicker the vegetation after they are sown, the less is their danger from that destructive insect the fly, which cannot hurt them after they have gotten their rough leaf. The difference of a week, nay, sometimes of a day, in sowing, is surprising.

If you are early in sowing, should the crop be injured by the fly, you will be yet in time to sow again; though I have seldom seen the second sowing produce a great crop. Most farmers in

that

that case merely harrow in the seed; but if your teams can possibly be spared, I would by all means advise you to plough up the land again, before you sow, or the turneps will never come to any considerable size, however favourable the weather may prove.

If the weather be dry, I recommend, from experience, soaking the seed three or four hours in water, till it swells considerably; drain it from the water, and sift on it some ashes; this will considerably increase the quantity, and be an advantage in sowing, as it will be spread thinner, and more even.

Though I am not sure that any thing will prove an effectual preservative, I am disposed to believe, that if the seed stood a day or two in a vessel, well mixed with some flower of brimstone, and the dried leaves of elder powdered, and then sown together with these ingredients, the smell, which
is

is remarkably offensive to the insect tribe, might prevent the fly from fixing on the tender leaf. The expence is so trivial, that it certainly is worth repeated trials, as it can do no hurt; and if it proves of service, as I firmly believe it doth, a very considerable advantage is gained.

I am sure that universally we sow too thick. They say you must sow some for birds, and some for the fly: but wherever that fatal insect fastens, the crop is spoiled, be it never so thick; and where it doth not, we are sure always to have too many. After all the harrowing you can give them, when they are above ground, those which come up so very thick together, are very difficultly hoed distinct: two or three plants are left close to each other, and the roots thereby stunted from being so large as they would have been if

if single; and in these is the great substance for feeding.

Two quarts of seed, or less, is fully sufficient for an acre, if sown even; and when mixed with ashes and brimstone, will fill the fingers of the sower as much as twice the quantity of clean seed. I repeat it, on every account sow thin: I never yet in my life saw a crop of turneps, on any proper and well-managed land, which escaped the fly, but was abundantly too thick.

Before you sow, harrow the tilth very fine: some give the seed one time after it is sown; but if the land be kindly and mellow, it will be sufficient to pass over it the light roller bushed; as the more superficially it lies covered with earth, the quicker it vegetates, and will be the sooner out of danger.

Hoe early, before your leaves grow too thick: nothing is more hurtful than to suffer them to smother each other

other at first; they never afterwards recover, be they hoed never so carefully. Therefore in time engage sufficient hands, that you may not be obliged to wait when the turneps are fit for hoeing; and if they are thick, harrow them without fear; you never need apprehend pulling up too many. The constant fault of well-set turneps is, that they are left too near each other. When I have stood by my hoers, I have thought they had cut up every plant, so great seemed the destruction; but I never yet had reason to complain that they hoed them too thin, but often the very contrary: therefore, in a fortnight or three weeks after the first hoeing, they should be again looked over, and thinned where too many are left. They should be distant from each other nine or ten inches at least, as it is amazing how much space a good turnep will occupy.

Your

Your hoers should not skim the ground superficially, or exercise the corner of their hoe too much, as they are very apt to do in idleness and haste, counting it sufficient to set the plants at proper distances, without stirring the soil. They should be made to lean pretty hard on the handle, and plough up deeper; as this effectually destroys the weeds, and, by loosening the soil, greatly promotes vegetation.

Never hoe (if possible) whilst the ground is wet. The weeds vegetate, and the turneps, which were loosened, catch again, and render the work scarce half done.

This is an expensive, but a most necessary part of culture. In some counties I am informed they never hoe, but imagine if they fill the ground with leaves it is sufficient; when experience demonstrates, that the food and weight of one acre of hoed turneps

turneps will exceed fix of such as are left to themselves.

The general price of hoeing with us, is fix shillings an acre, and two quarts of ale, which may be laid at three pence; as I apprehend, when malt is under thirty-six shillings a quarter, a quart of ale stands us in three half-pence, allowing eight bushels to the hoghead: and, as the farmer can brew so much cheaper, and afford to make his ale better than the publican, it is an advantage to the men, whenever they work by the great, to have a part of their wages rather in beer than money, and no loss to their masters.

A good hand at hoeing will gain from half a crown to upwards of three shillings a day wages; but they need good looking after, as they are generally too much in haste, and want to earn exorbitant wages.

An

An acre of hoed turneps may be estimated from thirty shillings to fifty; for land that will not rise to the first sum is not worth the labour and expence: but be the turneps never so good, it is not to be expected that this should be a saving crop. The succeeding ones are to reimburse you for the expence of the fallow.

Some persons draw their turneps, especially if the land be moist and apt to stople, and expend them either on their fatting oxen, or on the grass-land carry them to the sheep. But the least trouble, and what will most advantage the land, is to hurdle them off for sheep-feed; and if the land will not bear to be trampled, it is better to change the succession, and introduce some other course.

If they are drawn for oxen, they should be washed, and sliced, for which there is a very simple machine, which
a boy

a boy can turn. They are put into a hopper, and a strong board with iron slicers fixed in it, turned by a handle, dispatches a considerable quantity very shortly; and indeed it is surprising what a quantity oxen require. As turneps are a very watery food, some hay is always necessary.

The sheep put to turneps should be quite forward, and nearly fit for the butcher; for, if poor, they will not get fat on them. The benefit of feeding will arise, not so much from the increase of weight, though they will considerably improve, as from the increase of price in the spring. They are probably bought at autumn for two pence halfpenny a pound, or under, and sold in spring from three pence halfpenny up so high as to five pence.

A good acre of turneps will carry from four to six sheep through the winter, which should pay on an average:

rage about eight shillings a head. The scoopings also, after the fat sheep or the lambs are past them, will afford some food for your store flock.

One caution I cannot forbear adding, having repeatedly suffered loss by not observing it: don't feed your turneps too late in the spring: for though late food is precious, in order to keep the sheep to the dearest time, yet the loss in the subsequent crop is greater than any gain you can hope from the sheep; especially if the summer proves dry, and the ground, by the winter's wet, is trodden hard; in which case it will break up very cloddy; and perhaps the barley crop, and what is more important, the seeds sown on it, will be greatly injured. I would, therefore, at latest, have my turneps eaten off before the last week in April, that all the barley might be sown before May-day.

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I acknowledge, that if the summer proves wet, barley sown in May has succeeded very well. But, from long observation, I am convinced, that the early-sown barley, nine times out of ten, proves the best, and the first-sown the fullest crop.

ON COLESEED OR RAPE.

IN land deep and loamy, coleseed or rape is often sown instead of turneps, and proves a more profitable crop.

When the fallow is prepared as before, it may be sown early in July, but not sooner. If the season be very dry, the seed may be soaked in water. It has one signal advantage over turneps, that it is in no danger from the fly.

The quantity of this seed sown on an acre is usually a gallon; but half that quantity, or a little more, if uniformly

ly spread, would be sufficient. When sown too thick it spindles into a long stalk, is weak, the leaves change colour, and drop off, and five stalks scarce produce as much food as one good one.

It is not the custom to hoe it, as they do turneps. But I shall be induced to try hoeing another year, convinced that a plant of coleseed, if the soil is proper for it, will require as large or a larger space to spread than a turnep; and if the soil is not good, it cannot produce much under any management.

Good coleseed will keep seven or eight sheep to an acre, and bring them forwards much faster than turneps; the coleseed being more oily in its nature, and more substantial food. I have known it so strong and high, that the sheep were forced to eat their way as they advanced.

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The sheep should go on fresh as before, in order to go off in the spring; though I have known lean sheep go on in November on coleseed, and sold off fat before Lady-day; which on turneps is scarcely ever the case.

Of turneps a small portion should be hurdled off every other day, or every week at farthest; but where coleseed is, you should leave the whole open to the stock; for if a part be hurdled off, and the sheep confined to eat down the coleseed on one side, before they are put on the other, they will have taken to the stalk, of which they grow most fond, and which is the most fattening part; and when put to the fresh coleseed, instead of feeding on the leaf, they immediately attack the stalks, and make considerable waste.

If a crop of barley follows, the coleseed may be eaten as late as turneps, and will be bitten quite into the ground.

But

But if it is intended to be for seed the following year, it should not be eaten after Valentine, or the end of February at farthest.

The seed is a very profitable article, where it succeeds well: scarce any crop pays like it. I have been assured some fen lands produce a last (ten quarters and half) on an acre; and in general good land with us (and no other should be sown with coleseed) will yield from three to five quarters an acre.

The price of the seed differs greatly, from fifteen pounds a last to twenty-eight: even an acre of wheat will scarcely, on an average, equal it.

New broken up land, after a spring crop or two, succeeds generally well with coleseed on a fallow. Wheat seldom answers on such land, till after the coleseed crop, which greatly destroys the weeds, smothering every thing under it, when vigorous.

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A crop

A crop of this seed is supposed very much to exhaust the land ; but I am not myself convinced of the truth of this supposition. Other leguminous crops are less impoverishing than farinaceous ones. But should this be the case, the profit gained will afford more manure and better culture to recover it, if exhausted.

The expence attending the seed crop is not inconsiderable, in *bird-keeping* (for it is sure to collect a numerous host upon it)—reaping—which cannot be done under ten or twelve shillings an acre—and then threshing, with all the necessary apparatus, which it requires, of cloth, sledges, &c.

Those who have not a prospect of annually raising rape for seed, had best hire these things ; which is done with us at half a guinea a day. From twenty to thirty men, or more perhaps, are necessary for the threshing in the field ;
and

and their wages, victuals, and drink do not come short of half a crown, or three shillings a day each.

After the coleseed is reaped, which must be done before it is thorough-ripe, let it lie in reaps for several days, that the straw may get thoroughly withered and crisp. I have known it rain for a week at intervals upon it, without its receiving any considerable damage. Be not, therefore, in haste to thresh, but allow it sufficient field room.

As it is threshed and winnowed immediately in the field, the whole is fit for sale at once, and the return of the crop speedy, which is a considerable advantage.

The fold on the fallow is the best preparative for coleseed; but I have known on new broken up land a good crop from the fallow alone: though it ought to be manured, if not folded.

If wheat is intended to succeed your

coleseed, break up your stubble immediately; though this is seldom done, and it is only once plowed in general, and sown immediately on the first tilth. But I am persuaded a better culture will ensure the subsequent crop; and if you can give it a little of the fold or manure, the better. In a fortnight after ploughing, give it a tine of the great harrow, to clean it well. This will ensure a good crop of wheat, and may enable you to sow clover on it, or follow it with another crop of pease or beans before the return of a fallow. If the wheat be sown on one tilth, without fold or manure, a fallow must succeed it.

It is usual to burn the stalks, chaff, and refuse of the coleseed, on the land, where they lie after the threshing; but, if your farm-yard is not very distant, I very much recommend carting them thither immediately, where, by the trampling

trampling of the cattle during the following winter, they will rot, and very much increase your heap of manure; whilst, in burning, the best parts fly off, and the ashes left are too inconsiderable in quantity to be of any material benefit to the land.

If you mean an entire fallow, without coleseed or turneps, it is of essential consequence, during the summer, to keep the tilth as clean as possible. A crop of weeds exhausts it as much as any thing, and they are sure to come in plenty. Therefore, after the first stirring, not only repeat it, if necessary, a second time, but set your boys, in an afternoon, to spud up the docks and thistles, deep in the ground, that they may be effectually destroyed.

If folded or mucked in summer, stir it as soon as the fold is passed on, and the muck spread.

If the fallow be designed for barley,

carefully ridge it up at winter, that it may lie as dry as possible; then lay on your muck, which will communicate its goodness chiefly to the superficial soil, washing in during the winter, and in no danger of being exhaled by the sun.

Whenever you mean to lay down land in grass-seed for some years, a fallow will be essentially necessary. Some, out of covetousness, are unwilling to lose a year's crop; and thus often lay down their land in seeds, where it is so foul, or out of heart, that they either miscarry, or in a very few years it becomes necessary to plough them up again.

ON BARLEY.

BARLEY should follow turneps—or coleseed—or a fallow, with cloverseed upon it; and if sown in time seldom

dom fails to succeed. One ploughing and harrowing puts it into the ground. The seams should be taken narrow, the ploughing not be too deep, and only through the soil, which is thoroughly pulverised; which will make the tilth work fine, and benefit the crop.

If the weather prove dry, and the ground also, I steep my barley before sowing. For, if the dry season lasts any time, it may otherwise remain a great while in the ground, and come up unequally, as if sown at different times.

In general, four bushels on an acre is no more than the quantity necessary; though I have repeatedly, on a very rich loam, sown but a little more than one, and sometimes two bushels, and had very full crops. On its first coming up, indeed, it appeared comparatively thin, and the neighbours asserted

there would be no crop; but in June it began to spread and tiller out, and before harvest became too heavy, the straw, though strong, growing very tall. But the case of very rich loams is not to be a precedent for our common arable lands. Indeed I have heard it confidently prescribed, and supported with pretended arguments, that poor land must have less seed than rich, that it may have room to spread and collect nutriment. But I may appeal to the experience of every practical farmer for the confutation of such an assertion.

Unless the seed sown on poor land, and such as is commonly under the plough, fills the ground pretty thick with stems, the root in such soils will never tiller much, so as to cover the ground. And barley, if it does not lodge, cannot be too thick. But common arable land seldom affords any
great

great length of straw, and is less apt to lodge with wet, so that we have scarce ever reason to complain of the crop being too full : and if this be the case where four bushels are sown, what must it have been had there been only two ? The idea of saving the seed would be found very bad œconomy.

The clover to be sown, is best harrowed in with the last-sown barley. It needs but one tine of the harrows, and should be rolled immediately : but it is best defer sowing the clover-seed till the end of April on the early-sown barley ; for if it is sown earlier, and comes up, and a night or two of sharp frost happens, it will be very injurious. The roller bushed will be sufficient to hill the clover.

The quantity of clover-seed sown on the barley should be proportioned to the use, for which the future crop is designed. If for feeding, or green fod-

der, or hay alone, the clover cannot be too thick, and sixteen or twenty pounds on an acre will not be too much. But if you mean to take a crop of seed clover after the first mowing, then ten or twelve pounds will be fully sufficient, as distant and distinct plants are sure to produce the best and largest quantity of seed. If the clover is thick and heavy, it is sure to be laid before it is ripe; a young and fresh crop of heads is put forth, and the seed spoiled, many of the heads deaf, and the produce inconsiderable.

Some have pretended, that clover, and all grass-seeds, should be sown alone, or at least the barley very thin. Those who chuse to speculate in agriculture will, if attended to, frequently deceive and mislead. So far from proving in any measure injurious, I am persuaded, from the clearest evidence of experience, that the barley is beneficial:

the best clover being usually under the best crop of corn, unless the barley lodges, when it unavoidably destroys every thing under it. But as long as it stands up, be it never so thick set, the barley serves as a protection for the young clover, keeps the ground moist, preserves it from the scorching beams of the sun, and if it keeps the clover under, so as not to rise high, the better; for it is a well-known observation among all practical farmers, that the clover which is among weak barley, and vegetates so strongly, as to struggle above the corn, and get into flower the first year, is not so good the year following, having already too much exhausted itself, as well as injured the crop of barley.

Of all the produce of the field, none conduces so much to advance the revenues of the kingdom as barley. It is astonishing at the first mention, yet

demonstrably clear, that in many parts of this kingdom an acre of barley, manufactured into beer, pays twenty times more to the excise than the whole rent of the land. There are thousands and ten thousands of acres of barley land let from five to eight shillings an acre, which in a good year will produce from four to five quarters of barley, or upwards : each quarter of barley pays at the malt-house about ten and six-pence duty : from every quarter of malt, I am informed, a brewer makes three barrels of porter, the duty on which is eight shillings a barrel ; so that an acre of barley, productive of five quarters, pays ten shillings and six-pence at the malting, (out of which a deduction is allowed by the last act to common brewers, but the whole charged at the malting on all private families) and six pounds at the brewhouse. What
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an amazing sum! - - - - - besides the land-tax!

Barley is a tender grain, and will not bear wet: if water stands in the furrows, or there be under-ground springs, which make the land squashy, there the blade grows yellow, and perishes; the morassy parts should therefore be drained, not merely by open furrows, but by under-ground drains, else all the labour and seed will be thrown away.

Weed it clean from thistles, and the like unwelcome occupants; this is a most necessary attention: they who are careless in this respect suffer considerably; the weeds perfect their seeds, rob the corn, and foul the land.

Barley will bear to stand after it is ripe much better than wheat or oats, as it scarce ever sheds, and will hang its head a good while before it breaks off. It may therefore, when straitened
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for hands in harvest, be left standing, and mowed last.

In some counties they mow it with a cradle scythe, and lay it very neat in swarths, so as to be gathered and bound in sheaves : as they do also their rakings ; carrying with them sheafs of long wheat-straw, called by them reed, for bands. I think it a good method, but an increase of trouble ; and in harvest-time expedition is of importance. In general, after being left in the swarth a few days, if there are many greens in it, they shock and rake it ; which is frequently done by women, at one shilling the acre.

If there should be much clover with the barley, it may be necessary to turn the swarth, and let it lie a day or two the longer before it is shocked : if the harvest proves wet, this unpleasant work will sometimes need be repeated once or twice ; for if the barley grows
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in the fwarth or shock, it is spoiled for malting.

In shocking barley, I am careful the shocks be not made too large, especially in a catching season; though the contrary is usually practised. If a smaller shock be wetted, a very short fair blast will, if it be new made, or lightly shook up, dry it sufficiently to preserve it from shooting; but if a large cock is wetted, it will soon heat, and shoot; and though a little may be preserved dry in the middle, the sides and bottom will be greatly hurt, the farmer being afraid to disturb it, for fear of letting the rain into it, and suffering greater loss: even in fair weather, if, through the hurry of business, a large shock is obliged to be left a considerable while unmoved, the warmth will draw up the damp at bottom, and considerably injure it; and how much more, if the weather proves wet and sultry? If but
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one dry day comes, smaller cocks will be sooner in order for carrying, and less endanger the heating of the stack.

Be sure, if full of clover or greens, give your barley sufficient field room; for nothing will be a greater loss, than carrying it too soon, and causing it to heat when laid up. We are naturally eager to have the crop secured under thatch or cover, and thereby apt to be too much in haste to carry : a day or two longer in the field would have saved it to perfection.

If clover-barley be well got, it is very good fodder, and will spare your valuable hay; as your working cattle may be fed with it in part, and your store beasts improve by it.

If the summer and autumn prove dry, though the clover appears scarce visible after harvest, despair not of a crop the following year. After the first rain it will begin to shew itself,

and the next spring agreeably exceed your expectations; and if designed for feed-clover, it is seldom too thin, if the plants have not failed in very large patches.

My clover crop in 1778, after harvest, appeared very wretched, and my manager, as well as myself, doubted whether it would ever come to any thing, as in carefully examining the ground, in many places you could scarce discern a plant in a yard. The dry spring of the year following was very unfavourable to the first crop of clover-hay, and I believe I had not three good loads from thirteen acres. I determined thereupon to plough up the land for a fallow, and proceeded to do so with about an acre and a half of the barest; when a day's rain, and a strong appearance of vegetation, engaged me to leave the rest for seed, as an experiment, that I might see what
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it would come to. The clofe was accordingly mowed for feed, and every person who ſaw it was amazed from whence ſo great a burden came; I never had before to appearance a fuller, evener, and better crop of feed: indeed there was in many places too much; for though in hundreds of places the roots ſtood a yard diſtant from each other, after ſome genial rains the ſhoots became ſo luxuriant, and the root, which was not exhausted by the firſt crop, ſent forth ſo many lateral branches quite round the crown, that in ſeveral places it was laid, and in the thinnest the vacancy of a foot could ſcarce be found; and there you are ſure of the beſt feed.

I mention this particularly, that no perſon may deſpair of their clover, though to appearance, after a dry harveſt, it may ſeem to have failed; nay even, if after a dry ſpring the firſt mowing

mowing may be inconsiderable, the seed-crop may yet abundantly make up the deficiency. It is surprising how large a space a single root of clover, in luxuriant vegetation, will fill.

It is evident, that where the clover is thin and in patches, it will not at all answer for feeding, nor should it be trusted for a crop of hay; and therefore, unless hazarded for seed, should be ploughed up, in winter or spring, for a wheat fallow; unless a crop of beans be taken: which, if the land be clean, may be succeeded by wheat on the bean-stubble.

The clover, after harvest, may be eaten till the first frost, and by sheep only; but they should be off before Christmas. The root takes deep hold of the ground, and will not be hurt; and the leaf, if not fed off, would be cut down by the severity of the winter. This will retard for a while the necessity

necessity of putting your flock to clover-feed or turneps, and prolong and increase your spring food, at which time it is most valuable.

Though the expence of the clover-feed sown on the barley may justly be laid on the ensuing year, yet I apprehend the feed of the clover in autumn the same year will nearly repay it, and leave no expence chargeable on the next.

ON CLOVER.

THIS is the next crop in succession, and, where it takes well, one of the most valuable; there being no expence upon it, but the mere mowing and making, until the seed comes to the flail.

Some chuse to feed their clover the summer through: if good, it will
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carry five or six sheep to an acre; perhaps more, if the season proves favourable. It requires to be stocked hard, contrary to most other feeding grounds; for, if it is not kept low, and bare, as soon as it shoots into stem, and flowers, the sheep will not touch it.

Some feed it only to the middle of June, and then shut it up for a crop of hay or seed; if for seed, care should be taken to skim it over with a scythe, to take down all the tufts that are left, and every stalk which hath flowered: sometimes this may be worth raking up, or, if very inconsiderable, it may remain. These patches are generally found to produce only deaf heads, and would prevent the crop from coming equally and ripening uniformly.

But to make the crop of clover most profitable to the farmer, and I am persuaded most beneficial to the land, first take a crop of hay, and then of seed,

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It is most profitable for the farmer ; for if you lay the hay-crop only at five and twenty shillings an acre, which I think is below its average value, and the crop of seed at two hundred or two hundred and fifty, supposing the price of seed as fluctuating between thirty and forty shillings a hundred, this will produce, supposing two hundred only, at thirty-five shillings, three pounds ten, which, at the lowest, will give a produce in the whole of four pounds fifteen an acre ; and if the seed be good or dear, considerably more ; which far exceeds, I believe, what can be returned from sheep-feeding : for if you deduct six or seven shillings an acre for mowing, making, and stacking, and fifteen or sixteen for threshing, you must also make some allowance for the muck obtained for the ground, and the benefit lean beasts receive from the straw, besides what is yet more valuable, the
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tailing seed, and clover chaff, sufficient to sow a considerable quantity of land, and when laid on proportionably thick, as likely to bring a crop of clover as the best seed; it being observed by the threshers, that the best seed sticks firmly to the husks, and comes from the last drawings; so that, with all possible care, much remains in the chaff; of which the dung of the animals which feed upon it give the fullest demonstration. I think I do not over-rate these advantages, if I lay them against the threshing, and then a balance of clear profit, of four pounds nine shillings, and probably more, remains. When shepherd's wages, and accidental losses of sheep, are taken into the opposite account of sheep-feeding, the balance will yet be more considerable in favour of the mown clover; though it must be observed, that if the sheep feed off the first crop, and the second
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be saved for feed, the difference of advantage may not be so great. But usually the best crop is after mowing, and the vegetation quicker and more vigorous for the feed.

That this is also *most beneficial for the land*, I am also convinced from experience. It may be said, that the sheep enrich the land by their offal; and that the ground is exhausted, by carrying from it at two mowings so great a burden of crop; but, to counterbalance this, it must be observed, that though sheep, when folded close on fallow land, leave it impregnated with their dung and urine, yet, when loose, and dropping it at large in a field, it is thinly scattered, and exposed to the summer's sun, so that I apprehend a great part of the benefit is lost;—the land also, by being so much trodden, gets hard and stubborn;—the roots of the clover, it being eaten so bare, do not grow so large,

large, nor push so deep in the ground ; —many of the weeds, that are not cropped in summer, perfect their seeds, and fill the land for another year.

But when the clover is mowed twice, these beneficial effects are evident. The clover, during its growth, keeps the ground under it moist and open, retaining strongly the rain and dews ;—by its vigorous growth many of the lower ground weeds are smothered—or if they struggle up and appear in the clover, they are mowed with it before they perfect their seeds, and either totally destroyed, or so weakened that they can do no harm. The second crop smothers entirely the weak shoot, or it falls as before, leaving the ground clean—a great quantity of leaf, both during its growth, and at the two mowings, falls and putrefies—the roots are considerably larger—and much of the strong stalks on the crown

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are left to plough in—so that, on the whole, I am persuaded it will be found, that the ground is in better order, and a greater quantity of manure remaining after being mown, than when fed. And, as a consequence pretty clearly demonstrating the fact, I have generally observed, that the crop of wheat which follows is cleaner, and heavier, after mowing than feeding.

The following management of clover hath answered very well with me, I venture, therefore, to recommend it to others.

Shut up your clover early. It will be safest not to feed it after Christmas, that the early spring, if the weather be mild, be not eaten down, but the ground covered with leaf. Some indeed feed their clover till May, as early grass is so very desirable; but this casts the hay-crop so late in June or July, as greatly to retard the seed-crop, till it is

in danger of not ripening, or of being damaged by the autumnal rains. Whereas, when it is not fed in spring, the clover-hay is ready early in June, and the seed-crop ripe before the end of September, and the land thereby prepared the earlier for the wheat seed-ing; which, when drove late, especially on clover-stubble, is very prejudicial to the crop.

Some, to obtain a larger burden of hay, leave the first crop standing till it is full in flower; but this injures both the hay and the seed also, as the stalk grows hard, and the root is exhausted: mow it, therefore, just as the first flowers begin to blow. I never defer it beyond the tenth of June. The hay, though less in bulk, is far better in quality, full of sap, and the stalk tender. Horses will greedily eat up every bit of it. If the clover is well got, not too dry, but a little heated in the

mow, no hay is so grateful, or so heartening for horses; much provender will be saved by it.

Let it lie after it is mown several days in the swarth; turn it once over, without breaking it; a day or two after, according as the weather is favourable, cock it up.

Be sure the cocks are made very small, that the wind may go through them, as it makes itself thereby into hay, without knocking it about, which would lose a great deal of the leaf. Turn the cocks over once before you carry it. Let there be some sap in it to heat, but not so green as to grow black, or endanger its firing, which would be very dangerous. Watch it, therefore, if it smells strong; and open a vent by cutting into it, if it threatens to fire.

The seed-crop being more hard in the stalk, and dry, need only be whisp-
ed in small cocks, without turning the
swarth,

swath, and left, with one or two turnings over in the cock, without breaking, till it is very dry and fit to carry.

Be particularly careful, that your clover be never made into large cocks; when small, if the weather is dripping, the wet runs through them, and they recover, as soon as turned over, with the first sun and wind; but if large, they are a long while in drying through, retain the wet in the middle, and perhaps must be divided before they can be fit for the stack; by which means much of the leaf is beaten off, and perhaps by the delay the day for carrying it is lost.

In little cocks it will bear a vast quantity of rain without spoiling. I believe I had one year, near three weeks rain on my clover, with only intervals of a day, when I took care to have the whisps just rolled over. The length of time it had been wetted, made

me apprehend it must be utterly spoiled, especially when, at last, I was wearied with waiting, and carried it not perfectly dry: but, to my surprize, though it had a little mould in veins, it was sweet to the smell, and so palatable to the horses, that they devoured every morsel of it greedily.

When your clover crop is in stack, thatch it well down without delay; for every hour's exposure to rain may be very injurious to it, as the clover hovers, and admits easily the wet to run into the heart of the stack.

Your stack should stand open, exposed to the sun and wind, that the seed clover may be as dry as possible; for if there be any dampness in it, the seed will very difficultly quit the husk, and be lost in the chaff. When you rake it in for threshing, if possible choose a dry, frosty, sunshine day, when two or three of the like nature, which

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is frequent in winter, have preceded it ; for by this means it will very much help the threshing.

I ought to have mentioned under the head of clover feed, that sheep alone are the properest stock to depasture it : or if horned cattle are suffered to go with them, constant attention must be paid to them, they being subject to very fatal accidents, and many have been lost in a very few hours space. Nor is it sufficient to keep them stirring about, when they are first turned in, or after a few hours to turn them out ; for though, whilst this is done, the bad consequences may be prevented ; yet, even at any time, if there be a heavy dew, or the clover is flushed with rain, the cattle will be apt to hove, and be in danger.

The threshing of clover is a long and expensive operation. It is usually done at about four and six pence the

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bushel,

busshel, and a quart of ale each man. Those who are thus employed by the great, are usually in too great haste to clear their floor, and especially in heading the clover, frequently throw away in the straw, more heads than would pay double their wages. I advise, therefore, to head the clover by the day, and deduct proportionably for the drawing afterwards. Make them beat the straw small, till no heads remain in it.

The price of clover-seed is usually highest at the first, few samples coming early to market, and therefore some are in haste to begin; but I doubt whether the loss of seed, when the clover is threshed soon after Christmas, and the weather is moist and stormy, doth not more than counterbalance the supposed advantage. If there be a clear sharp frost indeed, it may do pretty well; but if a damp air comes on, and thaw, the seed adheres to the pod, is separated

rated with difficulty, and much is lost at last in the chaff. In March and April the seed threshes more freely.

In winnowing the chaff also, cast not out to the beasts what remains in the sieve, but lay it aside, and beat it over again, as it is full of heads containing very good seed.

All the chaff after the final winnowing should be carefully preserved, and spread on the tilth for barley and clover, or on your grass lands, especially if you have the scourings of an old ditch or pond to carry upon it. But this is best done when the hay crop is taken off, or when it is eaten down in autumn. After all possible care in threshing, much good seed will remain, and show itself wherever the chaff is sown.

The best seed does not, as I at first imagined, thresh out the easiest, as in other grain; but the last-drawn clover

is usually the finest, and most purple coloured.

If the weather be very damp, it is hardly possible to thresh the clover-seed clean. Therefore if you can employ the threshers about other business, the better; or if you cannot, preserve carefully the tail clover and chaff. The first dry day expose it to the sun, spread on a large sheet in some sheltered situation, where the wind cannot affect it; then make them draw it over again, and much more seed will be obtained. This operation will also much facilitate the threshing at all times; and therefore every day, when the clover which is headed can be safely exposed to the sun and air, it should be done: both the owner, in the quantity gained, and the threshers in the facilitating their work, will equally find their advantage.

Clover-straw is in general but meagre food,

food, and only fit for store beasts. Nor will they, without the addition of something more nutritive, improve. They should therefore have a little hay, especially your in-calvers, which should be well kept.

It is generally supposed, that clover will not do well on clay lands; and perhaps in very stiff and wet clay it may be so: but in a deep loamy clay, I have experienced its value. Such land indeed will not do so well to be fed; but if it is mowed, the ground will be kept moist and open during the summer. The best crop of seed I ever had was from nine acres of such kind of land, in the year 1780, which produced me nearly fifty pounds, beside the chaff and taling; and the first crop, which was an exceeding good one, more than balanced all the expences of mowing, making, and threshing. Clover was also remarkably low the last

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spring,

spring, and most part of mine sold for twenty-five shillings a hundred, and none for more than thirty. Had the price been as high as I have frequently known it, the produce would have been doubled, nearly one hundred pounds, whilst the expence of threshing would not be a shilling more.

ON WHEAT.

THIS is usually esteemed the most valuable crop, and therefore chiefly engages the farmer's attention.

The best and surest crop may be expected from a good fallow and the fold. No other mode of culture, that I have ever seen, is so certain and so abundant. But as one whole year's rent is thus entirely sunk, and the wheat-fallow, in whatever manner manured, an expensive culture, therefore it may justly be reckoned one of the great commendations

recommendations of the clover husbandry, that it is a good preparative for a crop of wheat, at the least possible expence. And though the quantity of grain seldom equals that from a fallow, yet, in a kindly year, it does not greatly fall short of it: and I have, though it is not usual, sometimes known the clover crop, under very good management, turn out as plentiful as the fallow.

It must be observed, that a fallow crop of wheat has two years rent upon it—three if not four ploughings, besides harrowing—and the manure requisite, whether from the yard, or the fold: so that when all the expences are deducted, though the produce may be considerable, the profit of the wheat, on the whole, will not be great.

After clover, one ploughing and harrowing are all that is necessary; and where the clover hath been twice mowed,

mowed, the tilth generally works very kindly.

The sooner you get your wheat in, after the clover is off the land, the better.

Be sure not to be sparing of seed. I am very sure, from experience, that two bushels and a half are the least quantity which should be sown on an acre, in any clover lay; and in most soils I believe three are better, especially if the land be not in excellent heart. Where there is neither a fallow tilth, nor great natural strength, the root will not make a crown of shoots to fill the ground, and therefore it should be filled with seed: it is seldom or never the fault of clover-wheat to be too thick and lodge.

On a good fallow the seed may be sown more sparingly; two bushels are sufficient. Nothing is more injurious to the crop, than its being lodged; which,

which, if very thick, and the summer proves wet, it is sure to be. The most luxuriant and promising crops are by this means many times worse in yielding, than the wheat which grew on the poorest soils; which standing more distinct, admitted sun and air, and recovered itself after heavy falls of rain, at least did not come quite to the ground.

As the clover-wheat is at so great a distance from the manure carried on the turneps or coleseed, and few farmers can afford, in this course of crops, a second dressing of dung, I would advise a spring dressing, of ashes, foot, malt-dust, poultry, or pigeon, or rabbits dung, or whatever of this kind can be procured: this must be sown out of a siblet; and though the quantity be but small, the effects will be very perceivable, in the darkness of the blade,

blade, and the healthy look of the wheat.

In the choice of wheat for seed a change is desirable. The same wheat, if sown repeatedly on the same land, degenerates in its quality.

The grain raised on clay land is preferred for the lighter soils; and contrariwise, the light land seed is the best change for the heavier: new land seed, if it is clean, which is often not the case, is accounted the most desirable, though leaner in the kernel, and lighter in the bushel, than old arable wheat.

When the ridges of the lands are raised high, which in many soils and situations is necessary, to keep the land dry in winter, they are often, though the deepest mold, seen thin of wheat; the seed ripples over them in sowing, and by the harrows it is drawn down on each side the declivity: to prevent this,

this, a little sprinkling of seed on the ridge, after the first tine of the harrow, is advantageous.

There is another inconvenience also attendant on high ridges, that they stand more exposed to winds in winter and spring; and if there be no snow to cover them, the mold, mellowed by the winter's frost, is apt to be blown away, and leave the roots of the wheat exposed to the chilling blast, by which it is frequently destroyed.

To prevent this, as early in the spring as the ground will admit the heavy roller, pass it over the land; by this means the earth will be pressed close to the roots, and the ground be made firmer.

In autumn, a round clod for wheat is preferable to a finer tilth. Wheat-ground may be harrowed too fine; if the wheat is well covered with earth, it is an advantage to lie rough, if the
clods

clods are not too large. This shelters the tender blade in winter, and, melting with the frost and rain, earths up the root, and in spring the roller compleats the work, and lays it quite smooth.

The seed-wheat is usually brined before it is sown, and dried with lime sifted over it. The brine is made strong enough to float an egg, and the light corn which swims on it skimmed off.

Instead of this simple brine, some have prescribed a variety of mixtures, to prevent smut, and to promote the fertility of the seed; but, on a careful examination, I have not yet been convinced that any signal benefit hath accrued from them.

Indeed I question whether any material advantage is procured even by brining, if the seed be clean; the wetted grain may vegetate a day or two the sooner, if the weather be dry,
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but at spring no material difference will be perceived, if the condition of the land and the time of sowing be the same. It is the season, whatever be the management of the seed, which occasions rust, bunt, and mildew. The distance of time from the sowing when these diseases attack the stalk and ear, is too great to admit the idea, that any steps so long before could have prevented them. A spring dressing of foot, ashes, poultry, pigeon, or rabbits dung, promises much more towards the prevention of these evils, than any medicating of the seed.

In a dry summer the wheat is in general good and plentiful, and in a wet one the most careful management is incapable of averting these diseases of the wheat.

Small inclosures and high hedges are with us very detrimental to the crop; though in some countries, that are bare

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or wild, the turf or store hedges are beneficial. A free circulation of air, and exposure to the sun, are very essential to the produce: where it is most sheltered under hedges it is usually most laid—the wind cannot again raise it up—the birds from the hedges fall upon it—and the grain itself that is got is usually lean and light.

Whenever the mildew strikes the wheat, it should be reaped, though apparently unripe; it gathers no more substance in the ear afterwards; the infected straw prevents the ascent of the nutritious juices to the grain; nay, if I am not greatly deceived, the longer the corn stands, the more the kernel wastes: but if cut down soon after it is infected, the grain hardens and ripens in the sheaf, and though not so plump as usual, is much better than it would have been, had it been left longer standing.

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It is however to be observed, that the unfavourableness of the season, and the injury the crop in general receives, is in fact the farmer's advantage upon the whole, and should silence his complaints, if indeed he did not mean to make his use of complaining. When corn is plentiful and cheap, a farmer has hard work to pay his way: the plenty seldom makes an adequate compensation for the price.

Wheat should not be left standing till fully ripe, as it is very apt to shed if the wind proves brisk, and sustains considerable loss: the colour also is brighter, and it is thinner skinned, when reaped as soon as the grain is moderately firm, so as not to wrinkle. It ripens in the reap, and in the shock.

Be sure don't be in too great haste to carry. Nothing tends more to procure good grain than sufficient field-room, especially if it goes under cover, or is
soon

soon to be threshed; for otherwise it will hang so tough in the chaff, that with the usual beating much will remain in the straw, and be thrown out at the barn-door.

On an airy hovel, where it is to stand till the next summer, it may be carried in much less time, provided it be so dry as not to heat in the stack; but if there be much grass, clover, or other greens, in the sheaves, you must let them stand the longer, to prevent all danger.

It is a precaution, generally useful, to make the sheaves small. When wheat is reaped by the acre, in order to save a little trouble in bands, the men are apt to make the sheaves too large; from whence a variety of ill consequences arise. If it rains, the wet lodges in the sheaf—and it is much longer in drying—it is unhandy to pitch—the bands are liable frequently

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to break, both in carrying and taking in, which litters a great deal of the wheat.

In some counties they cut their wheat as near the ground as possible; consequently the tail of the sheaf is full of grass and weeds. To remedy this, as it might endanger the wheat to stand exposed in the shock a time sufficient to dry it perfectly, they raise in the field large round stacks, diminishing to a point, called arish mows, consisting of a hundred and fifty or two hundred sheaves, with a sheaf inverted crowning the top; exposing thus the tails of the sheaves to dry, and effectually securing it from being hurt by rain. These are left standing a considerable time in the field, and are usually so full of mice, that when carried, they go in with the sheaves, and make great havoc in the mow; insomuch that by the following spring, if it stands so long,

long, they are obliged to take it entirely down, and new make it, or it would be devoured. I think I have seen a bushel of mice destroyed out of one hovel, besides those which escape.

Perhaps it might be for the advantage of these counties, to adopt the mode of the better-cultured parts; to cut their wheat high, and peck the stubble afterwards, and carry from the shock to a high and well-tinned hovel: this would prevent the loss from vermin, which is with them universal and great—it would facilitate the threshing, a man being able to thresh no more of such long-strawed wheat with them, than three bushels a day—and procure them, by pecking the stubble, more straw for thatching and manure.

Though I by no means advise hastily to change established modes, which may be justly presumed to have been adopted as the result of experience, yet,
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where the inconveniences in the methods pursued are obvious, and the advantages in the alteration recommended seem evident, it would deserve at least a trial, and custom alone should not be pleaded as an excuse, contrary to reason.

When your wheat is safe on the hovel, be very careful to give orders that nothing be put under it, or suffered to stand against it, by which the rats and mice can climb up. During the thatching, if not finished in a day, the ladder should be taken down at night. Much damage may arise from inattention to these minutiae: a single nest of mice, hatched in autumn, will be a large colony before the next summer; and though I have dressed the stacks, in order to destroy them by poison, I have never succeeded to any effectual purpose.

When your wheat is threshing, you

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will

will do well to examine the straw daily, and to make your thresher observe that you do so; as they are all of them in a monstrous hurry to run it over, and throw it out, and I am confident shameful waste is often made, much more than all the wages; though when a parcel of hogs are rooting the straw, it may often pass unperceived, unless you give an eye to it just as it goes out of the barn;—and whether you thresh by the great or the day, it makes little difference in this respect.

Wheat generally pays well for keeping. Poor farmers, who are obliged to make up their rents at a stated day, must thresh from necessity, and sell at the miller's price, whatever it be; but those who can afford to store their wheat till May, when barley seeding makes the market thinner, or the spring prospect affects the price of grain, usually make a considerable advantage of it.

it. Some keep it yet longer, and wisely, till harvest; for a few days rain at that season will often make a prodigious rise in the price of old wheat; and whatever weather comes, it is always some shillings in the quarter above the new: this makes it almost a certain gain, and sometimes a very considerable one.

CALCULATIONS

ON EXPENCE AND PROFIT.

HAVING described the course of cropping, which in general, if the soil does not forbid, appears most eligible, a short view of the expence and produce, on an average, will be desirable.

Observing only by the way, that I dare only propose a very moderate

profit, because I am confident the fact is so. Others may boldly recommend their schemes, with confident assurances of considerable gain. I confess I have never yet seen it; and uniformly observed, in the course of my experience, that the surest way habitually to thrive, is not to make haste to be rich.

In the following calculations, I shall not put the price of labour nearly so high as if the team was hired, because the occasional hire of a team for a few days must be supposed greater, than when employment is provided for it throughout the whole year: if the sum allowed will pay his servants wages, the maintenance of his horses, and the wear and tear of cattle and implements, it is sufficient for the master.

I make no charge for manure, it being the produce of the crops themselves; the expence only of carting is to be reckoned.

EXPENCE

**EXPENCE of one Acre's Culture, in the
Course of four Years Husbandry, in
the Succession of Turneps—Barley—
Clover—and Wheat.**

FIRST YEAR.

Fallow and Turneps.

	£.	s.	d.
Three ploughings - - -	0	15	0
Two harrowings - - -	0	2	0
Seed - - -	0	1	3
Hoeing - - -	0	6	3
Carting manure - - -	0	8	0
Rent - - -	1	0	0
Rates - - -	0	2	0
Hurdles - - -	0	2	0
	2	16	6

£. s. d.
Brought over - 2 16 6

SECOND YEAR.

Barley with Clover.

	£.	s.	d.
One ploughing - - -	0	5	0
One harrowing and rolling	0	1	0
Seed Barley - - -	0	8	0
Seed clover, 12 lb. - -	0	3	6
Weeding - - -	0	0	6
Mowing, shocking, and raking } - - -	0	2	6
Threshing - - -	0	4	0
Rent and taxes - - -	1	2	0
	2 16 6		

THIRD YEAR.

Clover Hay and Seed.

First mowing and making	0	3	0
Second ditto - - -	0	3	0
Threshing - - -	1	0	0
Rent and taxes - - -	1	2	0
	2 8 0		
	7 11 0		

FOURTH

Brought over - £. s. d.
7 11 0

FOURTH YEAR.

Wheat.

	£.	s.	d.
One ploughing -	0	5	0
Rolling and harrowing -	0	1	6
Seed -	0	12	6
Weeding -	0	0	9
Reaping and binding -	0	6	3
Threshing -	0	4	0
Pecking stubble -	0	1	8
Rent and taxes -	1	2	0
		2	13 8
Total expence -	10	4	8

AVERAGE PRODUCE of the four Years,
from Turneps — Barley — Clover —
Wheat.

FIRST YEAR.

Turneps or Coleseed.

	£.	s.	d.
To keep five sheep through the winter, at 8 s. per head - - - - -	2	0	0
	2	0	0

SECOND YEAR.

Barley and Clover.

Four quarters per acre, at 16s. per quarter - - -	3	4	0
Tailing D ^o - - - - -	0	2	0
Fodder straw - - - - -	0	5	0
Clover feed - - - - -	0	2	0
	3	13	0
	5	13	0

THIRD

£. s. d.
Brought over - 5 13 0

T H I R D Y E A R .

Clover Hay and Seed.

	£.	s.	d.
Hay - - - - -	1	5	0
Seed, at two hundred and a quarter per acre, at	}	3	7 6
30s. - - - - -			
Chaff and tailing - - -	0	6	0
	4		18 6

F O U R T H Y E A R .

Wheat.

Twenty bushels per acre, }	}	5	0	0
at 5s. - - - - -				
Stubble - - - - -		0	8	0
	5		8	0
Total Produce	15		19	6

Total produce - - 15 19 6

Total expence - - 10 4 8

Neat Profit - - 5 14 10

Which annually affords a profit on culture,
of £. 1. 8. 8½ per acre.

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I have supposed the rent a pound an acre, and the land good and convertible, and inclosed. The average of rent is very much, I acknowledge, below this; but the increase or diminution of a few shillings in rent, bears a small proportion to the other expences. I think I have not on such land over-rated the produce; for though sometimes, one or other of the crops may exceed, at other times, they may come considerably short of expectation, or be less in price.

I may add also, that land will in time sicken of clover, which I esteem the most profitable crop, and require, for a while, the substitution of something else in its stead.

At present, the price of wheat is fair, but barley is low.

This average yearly produce, when a family has been maintained, and some accidental losses of the team allowed for,

for, will leave but a small portion to add to the capital. And when the interest of the money requisite for stock and implements of culture is deducted, none, I think, need envy the hard-earned gains of the most industrious farmer; while the intemperate, the indolent, or the careless, will hardly be able to pay his rent, maintain his stock, and get bread for his family.

On good convertible land, perhaps, no crops, or succession of crops, will be more advantageous, than that we have been considering; but as some lands will not bear turneps, or will poach, so as to render it impracticable to feed them off, another succession of crops must be pursued.

Where the land is in good heart, and clean, it may be profitable to take a crop of beans after the fourth year's wheat; but I prefer the former course, of a fourth year's fallow.

Particular reasons may make it desirable to have clover sown on wheat land at spring; and sometimes a very good crop follows, especially if the wheat was left rough, and harrows down kindly on the seed. But a settled course of crops, in which the business is uniformly allotted and equally divided, enables us to make the largest culture, at the least possible expence, with the greatest advantage.

ON BEANS.

IN deep clay land, beans are often found a profitable crop, and succeed the wheat or barley. Sometimes it is inserted between them.

With us they are sown on the fallow, and ploughed in. And though I am rather averse to this mode of proceeding, I am assured by our most experienced

perienced farmers, that fallowing the land for beans in winter is very injurious; and that the beans sown after two ploughings, run into leaf and stem, but do not pod so well. As I have no land that is not convertible, I have seldom sown beans, and cannot refute their assertions, though I am not convinced of the rectitude of their procedure.

They leave the land a few days after they have ploughed in the beans, and when they imagine they begin to shoot, they harrow them; a great deal, they say, depends on the proper moment for harrowing, and the goodness of the crop arises from it. But I have often heard them complain, that a fall of rain has saddened the land so much that the harrowing has not succeeded, and the beans perished under the clod; which, I am persuaded, would not be the

the case if the land had been ploughed in winter.

I resolved to make two or three experiments of planting and hoeing beans, as I observe is the universal custom in Oxfordshire, Berkshire, Wiltshire, &c.; but though I did it at a considerable expence, the crop failed, and the broadcast beans were vastly superior.

Nor was I in this respect singular; two or three enterprising farmers in my neighbourhood, persisted for some years in drilling and horse-hoeing their beans, in land better suited to them than mine, but gave it up at last, from the conviction, that, take the expence and profit together, the broadcast answered best in this country.

Yet am I still persuaded, from the practice and produce of the above-mentioned counties, that the drilled and hoed beans is excellent management. Their crops appear superior to

ours; and the land, after hoeing, must be left in better order, and freer from weeds; and if designed to be followed by a farinaceous crop, the hoeing must be of singular service.

The saving of seed will nearly pay the difference of expence; less than two bushels planted will go as far as four sown broadcast. Far from discouraging, therefore, any other person from attempting it, because of my own disappointment, I should be happy to see, in Northamptonshire, more successful essays.

In our common fields, after the beans are above ground, the sheep are suffered to go among them in order to pick out the weeds, for they will not touch the bean. By this means the beans fill the ground, and smother them before they can rise again; but I should much prefer the hoe; nor do I see
why

why it might not be useful, even in the broadcast crop.

Our beans rise from twenty bushels to three quarters on an acre; in a very good year they may be more. Their price is generally between twenty-four and thirty shillings per quarter.

I have repeatedly known clover sown on the beans, and sometimes not unsuccessfully. Though in general, if the beans are good, and fill the ground, they smother the under crop; and therefore, unless under particular circumstances, I would by no means recommend the practice.

Of late, since our inclosures, beans have been sometimes substituted instead of clover, and followed by wheat on the bean stubble: but I am not a friend to the measure, as I have never seen a good crop of wheat produced in this way; and a bad crop of any grain must be unprofitable, both exhausting the
land,

land, and making it foul. False cropping of any kind seldom answers. It is far better to lose a year's rent in a fallow.

ON PEASE.

A LIGHTER soil is properest for pease, as the heavier for beans, though they are sometimes sown together. The strong stalk of the beans affording, it is said, a support to the pease, which raising them from the ground, enables them to pod the better, giving the sun and air freer access : but I am no friend to mixing crops, fully persuaded that when the soil is properest for either of these, they should be sown distinct, and will be most advantageous.

There is an early-ripe pea, called with us, *Hundreds*, sown on warm light land, as a preparative for wheat, and often with success, as they afford
a good

a good produce, and covering entirely the ground, smother the weeds, and clean the land: as they come off so long before all other grain, they allow time for a ploughing before harvest, and leave the soil mellow to receive a wheat crop.

Pease with us are all sown broadcast; but if they were drilled, and well hoed, this, with a subsequent ploughing, might not, I should think, ill supply the place of a fallow.

We sow four bushels on an acre; half that quantity drilled would be sufficient.

When pease approach ripeness they require constant and diligent attendance, as they are sure to collect all the pigeons in the country. These are monstrously voracious, and so eager, that no noise will scare them, but firing often, and that not merely with powder. An idle boy is utterly insufficient; it will

will pay, for two or three weeks, a man to keep them off.

Pease should be carried the first moment they are dry; for if a heavy rain soaks them, and a hot day succeeds, the pods open and shed the seed, so that a great deal is lost.

It is a general observation which I have made, that the better the crop is, whether of pulse or grain, the less the land is impoverished: for the weeds are thereby destroyed, and the ground kept clean; and they injure the land more, and render it more unfit for any future crop, than if covered by more useful occupants.

When the pease and beans are on the hovel, it is the practice in this country very frequently to turn in the fatting hogs to the stack, and let them help themselves. I confess I regard this as a slovenly procedure, attended with much waste and some danger; as I have

I have seen the stack so undermined as to be in peril of crushing them under it. Nor is it much better when it is cut down and thrown to them in the straw; the fodder, which would have paid for threshing, becomes totally useless, and the necessary labour of the hogs in rooting, to fill themselves, prevents them from fattening, as soon or as well as they would otherwise have done confined in a sty, where their food was brought them, in order that they may eat to the full, and sleep without interruption.

Besides, in this way the farmer is totally in the dark, how much is consumed, and can form no accurate account of the real profit or loss of the hogs which are thus fed.

I am persuaded also, that beans or pease split will go farther than when given whole, and very well repay the extraordinary expence, though few farmers ever care to afford it.

ON RYE.

THIS is a grain but little cultivated on our richer soils; but where the land is thin and poor, and will not bear wheat, it answers very well.

The culture is the same with that of wheat, and early sown; and the produce three quarters, or upwards, according to the soil and season. There is one good use made of it in Wiltshire, which might be very usefully adopted; and that is, sowing very early in the autumn for winter and spring sheep-feed. It affords a luxuriant herbage, when most wanted, being little affected by the frost; and, when eaten down bare, it may still be left in spring for seed; or, as it is often sown merely for winter food, the land is ploughed up in spring, when eaten very late, and put into a spring crop.

I may

I may remark also, that if your wheat is very forward, or, as they term it, *winter proud*, it is very useful to feed it off in spring with sheep; observing only one caution, not to put them on when it is wet or rainy: and if the land is naturally moist, and apt to staple, you must wait for a frost or a dry week or two; because, if the sheep leave any deep prints of their feet, the rain is apt to lodge in them, if it is a holding soil, and rot the roots of the wheat.

There is also an improvement, very common in Wiltshire, but never practised with us; and that is, to plough up the first stubble which is cleared, and sow the fallow with turneps, (or, as I should rather advise, coleseed.) They call them *stubb turneps*; and, though they seldom apple to any considerable size, yet, if sown early in autumn, and a favourable shower follows, they

they shoot vigorously, and afford a great resource of food at spring, when it is most wanted; and, as the seed is of trifling value, the ploughing is the only expence, and that also not useless for the following crop.

In order to secure the greatest probability of success, you should chuse the land which is light, and will work the best; and make all possible dispatch, as the gain of a single day, if it be rainy, will make a prodigious difference in the crop. I have twice sown cole-seed in this way, and it succeeded beyond my expectations: each crop was worth a pound an acre; and the present, if not winter fed, might, it is thought, produce a good crop of seed another year. It is a rich loam, and two horses ploughed an acre and half a day; so that the expence of putting it into the ground was very trifling.

Though they do not hoe the turneps
sown

sown on the stubble, yet if they come up thick, and the weather be very favourable (and as sometimes the harvest is very early, they may be in the ground the last week of July, or the first of August) then, I should think, a hoeing would not be lost. The seed should be well soaked at this time before it is sown, and dried with a little lime and ashes, which will quicken the vegetation.

ON OATS.

THE very great demand for oats of late years, hath so encreased the value of them, and the heavy taxes on malt so lowered the price of barley, that at present there are but two or three shillings difference in the price in general; and oftentimes old oats, at the end of summer, are fully equal to, perhaps exceed, barley in value.

New

New land, or closes that have been depastured many years, ploughed up in winter, and sown with oats, produce generally a great burden: I have had myself upwards of eight quarters on an acre. As the turf requires a year or two to mellow, such lands will not bear wheat so well, till after a second year's tillage.

Land that will not bear a crop of barley, will often succeed in oats, as it is a much hardier grain.

Where oats are to be sown, the stubbles should be ploughed about Christmas-time, to mellow: they will require no manure, and usually are succeeded with a fallow; though sometimes grass-seeds are sown with them: but as the land is usually in an exhausted state, when this crop follows, I think it bad husbandry to lay it down thus. The herbage continues weak

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and poor, and will hardly pay the rent in feeding.

There are two sorts of oats generally cultivated, and a third lately introduced.

The choicest and most esteemed is the Poland oat; which should be white, short, plump, and heavy.

In new and fenny lands it usually grows long, yellower, more meagre in its body; though the quantity produced is much greater than in the lands where the best seed grows.

The black oat is cultivated in Cornwall, Devon, and some other counties. With us the price is always a shilling or two, or more, below the white oat; and it is only sown on the very poorest land, that will not produce the other.

There is a third sort, said to be very hardy, which yields well to the bushel. It grows not as the common oats, branching

branching from the stalk, but adheres to it like a long feather; but I have no experience of its cultivation, nor have ever seen it in this country.

ON VETCHES, OR TARES.

THESE are of two sorts, and denominated, from the different seasons in which they are sown, winter or summer vetches.

The former are usually sown on the stubbles after harvest; the latter in the spring, two bushels on an acre, broadcast; but if drilled in, as is sometimes the practice, a much less quantity is sufficient.

In light, poor, scaly land, they will often produce a crop, where nothing else would succeed.

They are variously applied, according to the necessities of the farmer, and the opportunity of a market.

Sometimes they are fed by sheep during the summer; and must be hurdled off like turneps by a small piece every day, that they may be eaten clean as they go; the treading and offal of the sheep proving a good preparation for an ensuing wheat crop, cleaning the land, which is fallowed as the sheep pass on.

Sometimes they are mowed for fodder, and afford, during the summer, excellent food for horses, which can hardly be kept better or cheaper than when thus soiled by winter tares: especially near London, and other great towns, they are thus very profitably employed, as there is a ready sale for them; and they will bear carriage from a considerable distance, as the manure to be obtained, at a trifling expence, when the team returns, is a considerable additional advantage; and I may venture repeatedly to inculcate this advice,

vice,

vice, that wherever manure can be procured, the farmer need not grudge the expence; it is sure to repay him with interest.

Sometimes they are left to stand till nearly ripe, and in this state mowed, and saved as hay. Nothing affords a stronger aliment for the dairy, or produces in winter so great a quantity of milk, when it is most valuable.

Sometimes they are left till harvest, and saved for seed; though the fodder then from the straw is but of little value.

Pigeons are exceedingly fond of vetches; and therefore, when they are ripe, they need a diligent field-keeper, or these devourers will consume abundance of them.

If the crop of vetches has been a good one, and the ground not too much out of heart, wheat will often succeed well, though best when the vetches are

fed on the spot; but if the vetches are left to ripen, the weeds perfect their seeds, and the land is foul, it is better to give it a fallow, than adventure any crop, which is not probable to succeed.

In spring, vetches are in some places sown with the beans, which, as the tendrils shoot, embracing the bean-stalk, lift them up, and promote their podding: but I am no friend to mixed crops, which must injure each other, and not perhaps ripening exactly together, one or the other must suffer by being mowed too early or too late.

ON GRASSES.

IN every farm a proper portion of grass land must necessarily be allotted, to provide winter fodder for the working cattle or the dairy—to fatten oxen—maintain the rearing stock—and support the flock, if the turneps fail, or are destroyed.

As this is the least laborious in management for the tenant, many suppose it also the most profitable part of husbandry: an evident proof of which appears in the universal practice now adopted, of laying down all, or the greatest part of the common fields, which are newly inclosed, in pasturage: though with what advantage to the nation in general, I think, deserves much more consideration than our le-

gislators have hitherto thought proper to bestow on it.

Where the plough also is wholly laid aside, it is found advantageous to rest the land for two or three years under seeds, and take up the fields again in succession; which by this means recover their vegetative powers, after being long exhausted by tillage, and become more productive.

The moisture of our climate is very favourable to pasture; and the verdure of our lands, almost throughout the whole year, singularly pleasing, and, I am told, striking to foreigners. With us the very intense cold and deep snows of the more northern regions are seldom felt, or are of short duration: even during winter, vegetation is scarce ever suspended; and, our summers being cooled with showers and breezes, the country hardly ever affords the parched appearance of the more southern climes,

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where

where every blade of grass seems scorched up, and the face of the fields brown and destitute of verdure.

To this happy temperature we are indebted for the excellence, and superior produce of our grain—the fatness of our cattle—the abundance of milk and cheese—and the plenty and good quality of our wool.

Our lands, if uncultivated, naturally run into grass, and in many places will, in process of time, of themselves produce a firm sward, replete with various grasses. But as this always requires a considerable space of time; and, in general, the fields would, if uncultivated, be filled with weeds, artificial grass-seeds are sown to supply the place of the natural, and to endure till there are sufficient to afford a permanent pasture, or the land be again broken up in tillage.

Pastures, therefore, may be divided

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into

into *natural*, and *artificial*. The one from time immemorial mowed or grazed: the other laid down after tillage with different grasses, according to the intention of resting the land for a longer or shorter duration.

Natural pastures are divided into *meadow*, and *highland*.

Meadow, is such low land, as from its situation, by nature or art, is capable of being overflowed with water. And as proper moisture is the greatest cause of luxuriant vegetation, our meadows are the richest lands in the kingdom, and usually afford the highest rent.

Meadows also may be divided into *natural* and *artificial*. The former containing such tracts of land as lie flat, with very little declivity, and contiguous to rivers subject to overflow, on every heavy downfall of rain or snow. The rich sediment left on them by the waters,

waters, as they run off, and the moisture with which they are impregnated, occasion their great fertility. The produce of such meadows amounting to a ton and half, or two ton, of hay; and some years above that quantity: and many of them have been thus mowed every year, for time immemorial, without the least manure laid on the land, and yet continue in the same prolific state. Not but that a coat of manure laid on in autumn, and worked in before the floods come, is an excellent piece of husbandry, and sure, for many years following, abundantly to pay the expence in the increased quantity of the hay.

As nature here usually works unassisted, little need be said of these; an observation or two, however, may be of service.

In every natural meadow, where the water is apt to lodge in pans, and stag-

nate after the river returns to its bed, spear-grass, rushes, and other coarse trash are apt to fix themselves; to remedy which, small open drains should be carried to the most depending part. If kept dry, and a coat of ashes spread over these foul places, I have with astonishment seen, within a year or two, a piece of the coarsest meadow changed into the finest natural grass and Dutch clover.

Before the floods come, feed your meadow in autumn as bare as possible, as this tends to make the herbage finer the following year. Your sheep should depasture them till the waters drive them off: but whenever the rain makes the land so soft as to poach, the heavy cattle should be driven away to other pasture, as their feet will do more harm to the land, than any benefit they can receive from it will compensate.

In

In the spring no stock should be suffered to go on your meadows after February. For though many with us are tempted, to save fodder, to depasture them till Lady-day or after, if the spring is dry, yet I have repeatedly observed, that this is prejudicial to the hay-crop, and a great loss to the farmer on the whole. For, when the first spring of grass is thus taken off, and dry weather succeeds, the land is more exposed to the sun and wind, the grass stunted in its growth, and hardly ever recovers its vigour that year. But where the early spring grass covers the ground, it keeps in the moisture, attracts the dew, and preserves the vegetation vigorous, though the weather proves dry, protecting the root from the scorching sun. By this means also another singular advantage is obtained, as the grass is ready for mowing, a week, a fortnight, perhaps a month sooner

sooner than it would otherwise have been; and not only the quantity of hay is increased, but the quality also improved. For the farmer, because the crop is light, defers mowing in hopes that it will get a little more; by which means the stalk, which should be juicy, hardens, the hay-seeds ripen, and shed themselves, and the hay is greatly injured, and less nutritious.

I may add also, that the aftermath, by good management, is much better, and so much longer time is gained for depasturing it in autumn.

I am persuaded also, in general, that we let our hay stand too long, and that it would be more valuable if mowed earlier, though the quantity might be less. Nor am I at all satisfied with the reason which I have heard urged by my neighbours, that it is necessary that some hay-seeds should be shed on the land, in order to benefit the succeeding

ceeding year, without which the land would grow bare; but as, in our meadows, the grasses are all perennial, I apprehend no such supply can be needed, and the land by perfecting the seed is the more exhausted.

Sheep may be safely trusted in autumn and winter on the meadows, where no stagnant water is permitted to lodge. The summer floods are the cause of the fatal rot, but the winter communicates no such taint.

ON WATER MEADOW.

WATER meadows are formed artificially, and, as the produce is very great, are exceeding profitable to the occupier. They consist of such lands as naturally are, or by labour can be laid level, and which lie near to the side of some sufficient brook or river, that the
water

water may be made to pass over them, yet with such a descent as may carry off the water again into the brook from whence originally it flowed; which a very small declivity will do, as by flood-gates a head of water may be raised easily some feet above its natural level.

The profit is usually in direct proportion to the quantity of water you can throw over them at all times.—

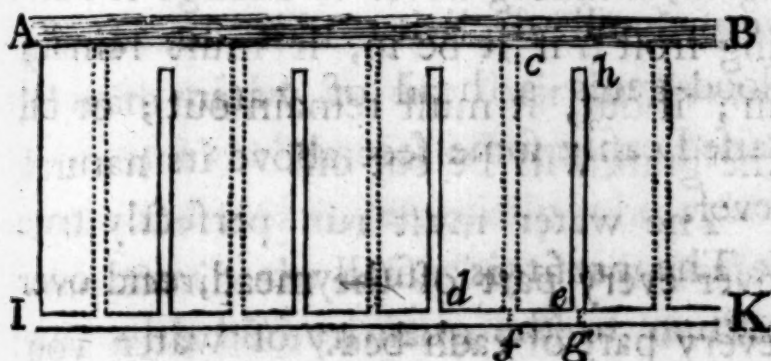
You may mow them twice, and feed them twice each year, and get from one to three tons of hay each cut from one acre.

The mead should be almost on the horizontal level, laid out in beds about twenty feet wide, each bed arched



according to this section.—At *a* and *b* are the drains to carry off the water after

after it has watered the bed ; *c* is the trough to convey the water along the whole course of the bed.



A B, The carriage to bring water to the mead.

d e, The width of the bed, twenty feet.

c f, The trough to convey the water along the whole course of the bed.

b g, The drain to carry off the water after it has watered the bed.

I K, The main drain, to carry down the water to a lower part of the river than where you took it up to bring it to *A*.

The

The times of watering are the latter end of November, putting it in three or four days, then out for a week, then in again, minding never to change it during frost: if it be in, it must remain in; if out, it must remain out; or all the grass will be cut off.

The water must run perfectly true over every part of the mead, and over every part of each bed.

Before it is mowed the water must be put in for one day, to make it cut well.

ON NATURAL PASTURES.

UPLAND pastures, like meadows, may be divided into natural and artificial.

I call those *natural*, that for time immemorial, or the course of many years, have been continued in pasturage, though in many of them the vestiges
may

may still remain that they have been at some time under the plough.

These are found so advantageous, that few landlords will suffer them again to be broken up; though sometimes it might be for their improvement, and the mutual advantage of the owner and tenant, especially where, as is frequently the case, they are become foul, with bushes, fern, rushes, or the coarser grasses. If, after a course of tillage, which might produce some increase of rent, they were again well cleaned, and laid down, it would be a common benefit.

Very antient pasture is also very subject to be overrun with mole-hills, a great part of the field being often occupied by them: these should be either cast, or carried to a heap and burned; as nothing useful grows on these hillocks, and they will, if spread either way, afford profit to the land as manure,

manure, as well as increase the quantity of productive soil.

Though the farmer in general gives all the manure he can raise to his turneps or fallow wheat, yet I question if any thing would better repay the labour, than manuring the old inclosures: the quantity of grass or hay produced for many subsequent years, will demonstrate the utility of such a dressing, and more than compensate for the loss of profit which might have arisen from the increase of a crop of grain.

For grass-land the muck should be thoroughly rotten,—uniformly spread, and as soon as casted on the land, that after bush-harrowing it may disappear with the first rain. Whoever observes the difference between one land mucked, and the adjoining left to itself, will have a demonstration of the amazing benefit it receives.

If grass-lands be wet and springy, they

they should have hollow drains of wood or stone drawn through them; the amazing benefit of which, every experiment made will immediately prove, and the expence, though sometimes considerable, compared with the profit bears no proportion: without this, even manure will be of little service.

Land which lies wet and spongy, is sure to produce nothing but trash, and such coarse grass as affords little nutriment—will be poached and dirty, and but just keep alive a half-famished stock; than which there can be no worse management.

Some Dutch clover, sown upon the dressing before it is bush-harrowed, answers very well, and within a few years will spread, and often ameliorate the pasture amazingly.

ON, ARTIFICIAL PASTURES.

ARTIFICIAL pastures are such as from arable are laid down with grass-seeds, either for a time or for perpetuity. These are sown either with seed of one kind only, or several sorts mixed; which is always the case when the land is intended to remain in pasture for any considerable while.

The seeds most commonly and generally made use of, are, broad clover—rye grass—trefoil—marle grass—Dutch clover—saintfoin—lucerne.

It hath been often recommended to gather the seeds of fescue, crested dogstail, and other good perennial grasses; but the trouble and expence of procuring them, and the small quantity which can be obtained by picking them from the hedges, afford little probability of any great use being derived from them; and

when hay-seeds from the stable or hay-loft are collected, they are usually so full of weeds, as of dock, and thistle-seeds, and the like, that I doubt whether they do not more harm than good.

In laying down land into grass, some have strenuously advised that the seeds should be sown alone, under the idea that two crops must injure each other; and that in proportion as the corn flourishes, the seeds must be affected, or fail. But, however in speculation this may be supposed, in practice the contrary will be found true; for a crop of corn, I apprehend, unless it be lodged, is in no wise injurious to the seeds, but rather beneficial. By covering the ground, it checks the growth of weeds—keeps in the moisture, by which the seeds vegetate—prevents, if the summer is dry, the ground from being parched—and, when
carried

carried off at harvest, leaves the land cleaner, than it would have been without it. Before winter the seeds shoot strongly; and, whilst a beneficial crop is gained, the land is left better set with grass for the following year.

Land, to be well laid down, should have a fallow, or turnep crop, well hoed, in order to clean it thoroughly, and be well mucked, as it is a great concern that the seeds miscarry not, the expence being considerable.

Sometimes, indeed, I have known breach-land laid down, and succeed very well; but in that case it should be ploughed up before winter, well manured, and worked about with the great harrow in the spring, after a second ploughing; then, if the spring be dry, and the land sown in the latter end of April, or the beginning of May, it hath time to be pretty well cleaned,
and

and may save a year's fallow: but usually it is ill oeconomy.

Land may be laid down under any grain, wheat, oats, or barley: but the latter is far the best, and most sure of securing the growth of the seeds, the straw not being so long as oats, and less apt to lodge; and on wheat land the winter has so hardened the soil and surface, that the seeds sown in spring on wheat, are much more likely to miscarry, than when committed to the fresh mold.

I would also advise, where seeds are sown, that the quantity of seed-barley be rather less than usual; which may be no disadvantage to the crop, but a great benefit to the seeds, as the barley, by standing more distinct, though it should cover the ground, will be the stronger, and less apt to lodge if the summer proves wet.

The best pasture is from a mixture

I

of

of seeds, and not sown sparingly; for where it is intended for a feeding ground, it cannot be too full at first. I have always sown a sack of rye grass, ten pounds of broad clover, and five of Dutch clover, and sometimes trefoil four or five pounds, to an acre.

These should not be mixed, but sown each by themselves, or they will not come so even; some of the seeds being larger and heavier than others, and consequently in spreading will fall, if sown together, unequally: and particular care should be taken to wait for a calm, still day, as I have seen very great damage done by hastily sowing when there was wind; therefore I get the seed ready, and if there be a still hour in an evening, I set all hands to work, as many times in the spring it is difficult to seize this favourable moment.

Roll the ground immediately: sometimes

times bush-harrowing is useful ; but if there is a round clod, rolling may be sufficient, as the seed is small, and easily hills.

The first and second years the broad clover usually predominates, and little of the Dutch clover appears ; the rye grass fills the land with sward, and as the broad clover wears out, the natural grass and Dutch clover spread themselves, and in a few years make a firm turf.

ON MARLE GRASS.

ON the management of common clover I have already treated at large.

Marle grass is a species of clover. Its herbage is not quite so luxuriant as the common red clover, nor its stalks so strong ; but it has one great advantage, that it is so much more enduring, being perennial, and therefore conti-

nues to flourish in pastures with other grafs, where the common clover would be soon worn out : this property has very much of late introduced its use in laying down lands to grafs abidingly. It is supposed to exhaust the soil less than rye grafs ; and, when the land is broken up, if it begins to grow mossy, as is the case in many soils, the roots of the marle grafs are a kind of manure.

When it is intended to produce a crop of seed, it must be sown alone, after the barley, and bush harrowed, ten or twelve pounds of the seed to an acre ; but if designed for pasture, then a mixture of other seeds is used ; a sack of rye grafs, six pounds of trefoil, or four of Dutch clover, with six pounds of the marle grafs, will be sufficient for an acre.

When intended for seed, the management is the same as the common clover :

clover: though in many lands you may not be able to gain two crops; and therefore the first crop of marle grass must be left to stand till ripe; only it will in that case afford some late spring feed, not being shut up for seed before May-day, and a month's grass in the spring is often of great value.

The price of the seed is very fluctuating, like that of common clover, from five pence to a shilling; but as it has been of late more cultivated, the price is considerably abated, and falling lower every year, and probably will soon not much exceed clover.

Where the land is intended to be laid down but one or two years, the red clover will be always preferred, because of the superior quantity of fodder it affords; but where it is intended that the pasture shall be abiding, there the marle grass is to be preferred to the common clover.

As it will affect horned cattle in the same manner as the red clover, care must be taken not to turn them in upon it if luxuriant, lest they swell, and, as it is termed, be hosed : therefore the pasture should be kept short, the cattle at first stocking carefully attended, and moved about that they may not feed too greedily ; and if the dews are very heavy, particular attention should be paid to them, as considerable damage has often arisen from clover, and I apprehend the same effects in a measure may be feared from the marle grass, though not quite so great a degree of danger as from the common clover.

ON RYE GRASS.

RYE GRASS is often sown alone, and of itself will make a good pasture. It is an early grass, usually springing
three

three weeks before most natural grasses, and therefore affording an early pasture for sheep; and where land is intended to be broken up again in a few years, the Dutch clover, which only appears after a year or two, would be lost.

A sack to an acre is nearly sufficient; some sow a little more.

If the land be clean, the first year will afford a very profitable crop of seed; and I apprehend it both good for the land and its owner, as the produce of the seed is some years very considerable, and what unavoidably falls in making the hay, fills the land with grass another year.

Rye grass, if cut for hay, should be mowed early, as, if left till the stem hardens, it is very poor fodder, scarce better than barley-straw; and where threshed for seed, is only fit for lean beasts in a straw-yard.

If the land be fed the first year after

laying down, it should be only with light cattle, sheep, or rearing calves, and not over-stocked; as nothing injures it more than poaching, especially if the soil be heavy: the water stands in the hoof-print, and perishes the roots in winter; and till the sward grows firm, every foot of heavy beasts leaves a hollow.

ON DUTCH CLOVER.

THIS derives its name from the country whence we generally import it; and as it is usually very dear, would be a profitable article of culture, if raised alone for the feed. Our lands indeed naturally run into it; and where it hath never been sown, it will often appear, and spread surprisngly.

Yet hitherto this article of husbandry has not been adopted, I apprehend
owing

owing to the difficulty we find in raising the seed clean; our land running into natural grasses, and the mixture destroying the value of the clover.

It would be a useful piece of information, if, from experience, any method could be found of raising a good crop of this seed, and thereby preventing a constant drain of cash, which annually is drawn from the kingdom for this article; as this makes a principal ingredient, wherever land is abidingly laid down in pasture.

As the seed is small, the quantity of four or five pounds, mixed with other seeds, is sufficient.

ON SAINTFOIN.

IN many parts of the kingdom the introduction of saintfoin hath contributed to advance the value of land, beyond any thing yet attempted.

In stony soils, on flint, chalk, and downy sheep-walks, amazing improvements have arisen from its culture: if there be but a shallow tilth, it will seek its nourishment deep among the crevices of stone and rock, and flourish when other grasses are burnt up.

Saintfoin is sown with barley in the spring, and being a large seed, must be harrowed in with the barley; and the pigeons carefully kept from it for some days, till it begins to shoot.

The land should have a thorough fallow, and be made as free from weeds as possible; as *the continuance of this grass depends upon its being kept clean.*

It is a very enduring grass, flourishing for twenty years together, if kept free from weeds, and sometimes manured; and its produce very considerable.

Much also depends upon the management of the first two years, as then it is most liable to suffer.

Therefore,

Therefore, when the barley is mown, I would not feed it at all the first year; for though no plant is of a hardier nature, and will forage deeper for its maintenance, yet till it hath taken firm hold of the ground, if the crown of the root is eaten at first too close, or trampled with beasts, it perishes, and your labour and expence with it: therefore it is better to lose the feed at first, than imprudently injure the succeeding crops.

The first year it must be mowed when full in flower; nor should you be discouraged though the crop be small, as it does not fill the ground and come to perfection till the third year.

I repeat the charge, keep it as clean as possible: it will be worth while after mowing to go over it with a hoe; and, as the plants will be then seen distinctly, much weeds may be destroyed, and the soil a little moved.

The hay it affords, if well got (and it is as little liable to be hurt as any grass) is very acceptable to all cattle; and, in countries where meadow hay is scarce, is particularly valuable.

When it hath well shot, and covered the ground, sheep in autumn may be fed on it; be careful only that they depasture it not too close, as that would injure it in the winter: a coat of manure, soap-lees, or ashes, should be laid on it, and the third year the ground will be perfectly filled, and the crop probably for ten or a dozen years continue in perfection, and little subject to injury; though it is always best not to eat it too bare in winter.

If seed be taken, it must be suffered to stand till September, and left till the seed grows hard; the straw will then be of very little use, being so hard and sticky, but the seed often proves very valuable.

Land,

Land, not worth more than a shilling an acre, hath by this means been improved to a pound, and that for a succession of years; and when the saintfoin is worn out, it leaves the land more valuable than ever for culture, and, after a course of crops, ready again to receive the saintfoin.

Some have recommended the sowing the saintfoin in drills, and horse-hoeing it, as the most profitable way of management. I own, I know nothing better than the broadcast method; and as, without any expence, I have seen, for a course of years, very full crops thus gathered, I should suspect the drill husbandry could hardly exceed it in produce, and must be attended with much more trouble and expence.

ON TREFOIL.

THE culture of trefoil is similar to that of clover, and the management of it nearly the same. It is sown with barley in the spring, most frequently mixed with other seeds, for pasture, but sometimes alone for seed.

No herbage is more grateful and healthy for sheep than this : and as it is not tender, but congenial to our country, it will flourish in almost any soil.

If it is intended for seed, it should not be fed too late ; some time in May, according as the season is, the stock must be removed. You will see when it is ripe, by the yellow heads turning very brown and dark ; and by rubbing a little in your hand, may prove whether the seed is plump, and hardened.

It

It should be full ripe, being in a pod that does not easily shed.

The price of the seed is generally inferior to clover, but the produce, in land that suits it, greater, up to three or four hundred weight; and the threshing not quite so expensive as clover.

ON LUCERNE.

THE use of lucerne is entirely to be confined to soiling; as, from all the observations I have made, it does not answer in hay: is easily damaged, and the leaf sheds; though some have extolled its excellence. As green food, no grass, that I have seen yet, equals it for quantity; red clover comes the nearest to it.

I have known it sown with success broadcast with barley; and, as the land should be made particularly clean for
it,

it, the lucerne will rise the next season very luxuriant, and with a little harrowing, continue a profitable crop for three or four years. This is the way it is managed about Brighthelmstone, and other places in the open fields, where hay is scarce, and summer fodder valuable.

But the most commended, and undoubtedly the best method, is to sow the lucerne in drills, after a fallow, or spade-trenching of the ground; for weeds are its destruction, and the permanence and quantity of its produce depend entirely on its being kept clean. The distance of the drills need be no wider than nine inches, just to admit the hoe; for I recommend hand-hoeing, as, though more expensive, yet incomparably the most effectual for the destruction of weeds. The rows themselves also should be weeded by hand, as well as the intervals hoed, whenever
weeds

weeds begin to rise; and every gap, where the lucerne fails or perishes, as will always happen, should be filled up with fresh plants raised in a bed for that purpose.

As a small quantity of land, well ordered, will afford an amazing quantity of fodder, the very best fine hazel loam should be allotted it. As it must be managed in so expensive a mode of culture, the rent of the land it occupies is no consideration: on poor land, in drills it can never answer.

The lucerne should always be mowed before it hardens in the stem. It should be got off the ground as soon as possible, that the leaf may not drop, and the sun and air be admitted to renew vegetation; and above all, that it may not be soiled by the mold which is under it: for which reason, it is best cut and carried to the stable when the dew is evaporated.

Treated

Treated with such care, it is not easy to say how long lucerne will last, especially if some rotten muck, at winter, be scattered in the intervals to supply the exhaustion of the soil.

It must be acknowledged that, in this way of management, the culture is very expensive; and this often intimidates the common farmer from the attempt. But if the profit more than proportionably exceeds the expence, compared with the rest of the farm, it must be advantageous, wherever a small spot, suited to lucerne, can be easily fenced in. It must be observed also, that, as such spot should be chosen as contiguous to the stables as possible, the constant hoeing which it requires might be performed at odd times, when perhaps little else of importance would be done.

One thing I am very sure of, that in the whole circle of common husbandry
there

there is nothing so little attended to, or perhaps so ill managed, as the article of summer-keeping for horses. Few, very few farmers ever think of soiling them, in this country; and either to save trouble tether them, or turn them loose into a close, the hay of which, in winter, would be a vast acquisition to them, and more, I will venture to say, than three times the value of the green fodder they could consume, whether lucerne, clover, or vetches—besides the great advantage of having all their dung saved in the yard, and the readiness of putting them into the team immediately in the morning, instead perhaps of having half a mile or a mile to fetch them from their pasture.

I cannot therefore conclude this article, without warmly exhorting my brother farmers to make the experiment, in either of the vegetables above recommended. His man perhaps may
murmur

murmur against the trouble of mowing and carting the fodder: this, if near at hand, I think hardly so great as of chaff-cutting; and well soiling saves not only that trouble, but the great expence of the corn that follows it.

I Shall conclude with a few observations on the farmer's stock, under the heads of Cows, Sheep, and Swine; which in every farm are necessary, and ought considerably to add to the profits.

ON COWS.

THERE is scarce to a farmer a more useful, necessary, and profitable animal than a cow. The articles of cheefe, butter, and milk, are so important in the family, and the price so considerable, that a great part of his maintenance,

tenance, adding the tailing corn for bread, arises from it.

I profess not to enter into the consideration of a dairy farm, where cows are the only object, but to make some observations that may be generally necessary, be the dairy large or small.

With regard to the breed, it is well known that the finest-looking kine are not always the best for the pail; nor will many countries bear the same kind of stock which are found most profitable in others. In general, the breed of every country is best suited to that country: a fine cow from the fat lands of Lincolnshire, or Cheshire, would starve on our cow-commons, and even in our best land find an insufficient maintenance.

Yet the best of the country breed, whatever it be, should be chosen for the dairy; and the difference of price (though many are very absurdly economical)

mical) is nothing, compared to the advantage of the produce of a single year.

The farmer, if he has conveniencies, should breed his own stock: the less he buys, in general, the better. If he has a particularly excellent beast, from her every cow calf should be raised.

If he keeps no bull, he should not send his cattle to the nearest, because it saves trouble; but enquire out the best in the neighbourhood. The difference of labour in sending is very inconsiderable; but the difference of the stock raised may be great.

The best pasture should be allotted for the dairy, and the number of cows not too many for it. It is best rather to be understocked, that they may have a full bite, and enough in case of dry weather. Nothing can be worse management than to stint them for food. Two cows, well kept, will yield more than

than four underfed. Nor should they be grudged hay in plenty in the winter, while in milk. Horses love hay best that hath taken a good heat, and is sweetened by it; but cows yield most milk from hay that is quite pale and green, and laid up so dry as to take scarce any sweat in the mow.

A farmer who manages a dairy by his own children or wife, whether small or great, will find it answer; but he must not keep a servant extraordinary if he has less than twenty cows, as the wages and keeping of such servant would swallow up his profit.

Every cow with us, on an average, produces, in butter, cheese, and calf, from five to six pounds, according to their goodness, besides the advantage of the milk and whey for the hogs. And their summer food stands us at near forty shillings a head, and their
winter

winter food about as much ; but more if they calve for a winter dairy, their calf, and the advanced price of butter, adding to their profit to balance it. On an average, I apprehend their profit from thirty to forty shillings each.

After some time they decrease in value : though few care to part with a good cow, as they will last many years, thirteen, fourteen, or more, in unabating produce.

If a cow loses her season for bulling, or any accident makes it eligible to part with her, the loss from her original price (the calf deducted) is seldom great ; and if she is fatted, some advantage is often gained by her.

ON SHEEP.

SHEEP often prove a profitable, but sometimes a precarious stock to the

the farmer. No cattle are subject with us to more diseases, and the losses are very great, by the rot and red-water. The rickets, so fatal in some countries, are seldom found with us.

It is with them as with other cattle, that the breed peculiar to the country is best, if you are careful to procure the best it affords.

I should prefer those that are short-legged, well wooled down the thighs, round barrell'd, and the fleece not shaggy and loose, but firm and close, as they bear the winter much better.

The choice of a ram is of signal concern, in order to a good breed. No money is better laid out, than in the purchase, or hire, of such as is excellent in its kind. Though I should advise always to breed two of the most promising lambs for that purpose; if they answer not, they may be afterwards gelt, and no loss incurred.

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I would

I would not be ambitious to have my sheep in size very large, unless my pasture was proportionably rich and deep; but would rather have such stock as would be as near as possible suited to the land: for which end, I advise continuing to raise stock, and culling every year the inferior ewes and lambs, till I had procured such as pleased me for size and wool.

A careful shepherd is a great treasure. With us they are too apt to be negligent, unless the master's eye be sometimes over his own fold.

ON HOGS.

HOGS are of singular advantage, as their food in general would be lost without them; and therefore the expence of their keeping is not felt, nor can come into any account, till they
are

are shut up to feed for pork or bacon. The stubbles, straw from the barn-door, refuse tailing corn, grains, offal of the garden and house, and especially the dairy (where there is one)—these serve to nourish and rear pigs, from six shillings to a pound or upwards, according to the time of keeping them.

I have had three litters, amounting to thirty-two pigs, from one sow, within the year; but two litters may be expected.

Pigs are subject to few disorders, and are sure to thrive, if they have their belly full; and it is a universal rule, to keep no more of any stock than you can *well keep*; an observation which cannot be too often inculcated.

I have observed what to me seems very wasteful management, respecting hogs, to be general with us. After harvest, they are suffered to run to the stacks of barley, oats, or beans, under pretence

of eating up the corn that is fallen, and on the outside : there is usually just then plenty in the fields ; and when they want, instead of suffering them to tear and root the bottoms of the stack, I always have mine pared at bottom, and the offal swept up and given them orderly in the yard ; which neither disfigures the stack, nor wastes the useful grain ; and if any are suffered to run for a little while in the stack yard, to lick up the refuse on the ground, they should be only those of an inferior size, who cannot reach high, and have less force to root beneath.

When hogs are to be fed for pork or bacon, their food, whether barley, pease, or beans, should be broken in a mill. I have made some observations, under the article of Beans, which then occurred, and need not be repeated here ; but one thing I advise, and that is, always to measure what is given to
fatting

fattening pigs, that you may really know what they have eaten, and what advantage they have produced; and this not merely for present satisfaction, but for future benefit, as you can more exactly judge whether it will be most advantageous to consume your grain, and dispose of your hogs lean, or fatten them yourself.

I am very sure, though a farmer does not attend to it, that many times his fat hogs have not paid him for the corn they have consumed.

ESSAY I.
ON INCLOSURE OF COMMON FIELDS
AND WASTE LAND.

THE vast inclosures which have of late prevailed, and continue increasing through the kingdom, are an evidence of some very considerable advantage accruing to the proprietors from them; but whether the increase of the rent roll be always a real benefit to the kingdom, is a matter deserving serious consideration. Much hath been said pro and con, on this subject; but if there were a distinction made respecting the nature of the land inclosed, the arguments on both sides might be in part admitted, and would be true.

The inclosing *common fields*, already under a good course of husbandry, and
laying

laying them down into grazing farms, (by which a whole parish comes into the hands of one man or two, and more than half of those who occupied it before are often turned adrift) appears on the first view a great hardship. The depopulation consequent is too evident to be denied. The decrease of all exciseable commodities and manufactures must bear an exact proportion to the decrease of those who use them. The nation therefore at large suffers in its revenues—and as the peasantry are its chief strength, as the most healthy, sober, and vigorous, our defence is thereby diminished. I think these are facts that are nearly capable of demonstration; and the only balance against them, the increase of clear rent to the proprietor—the necessity of fewer farm-houses and less repairs—and the diminution of labour forcing more to manufactures from the plough; but whe-

ther this is to be counted an advantage, is somewhat problematical.

On weighing all I have seen advanced on the subject, I own myself convinced, that the inclosing and laying down to grass good common fields, which produced wheat, barley, and beans, from three to four or five quarters per acre, is a real grievance to the farmers, a certain depopulation of the country, a loss to the community at large, and a benefit only to the individual owner.

The very reverse seems to be the case with the inclosure and improvements of wastes, commons, and forest-lands. Indeed it is a shame, where agriculture is so well understood, that there should be so many millions of acres still in this condition. One of the noblest expenditures of money, that would add beauty to the country, strength to the nation, and profit to the proprietor, would

would be to inclose, improve, and people this at present almost useless extent of territory.

I wish there was not a common left in England: where the miserable beasts now scarce exist, summer or winter, we might then have fat ones in plenty. Except the open fields under culture, every foot of land should be inclosed—the bushes and trash grubbed up, which in every running common are generally permitted to grow unmolested—the wet parts drained, which are the present bane of the sheep in summer—and this, divided among the farmers occupying the ground, under the plough would afford them, what is generally greatly wanted, pasturage for their stock. The cottagers right might be adjusted; though in many places it is made no use of—or with little benefit to them—and sometimes greatly abused.

There are thousands of acres of good

land, capable of bearing crops of grain or grass, covered with ling, fern, heath, and shrubs. These it would be a signal benefit to the community to convert into arable and pasture — erect farm-houses and cottages for labourers — and make a fruitful field of a desert. I wish many gentlemen would look on the lands and inclosures near Wells; — I never pass them but with pleasure — and a desire I had ten thousand such acres to improve, and ability to support the expence. I mean not for the article of advantage, which must be very great, but for the delight of beholding the change.

There are some lands, I admit, of such a quality, that expence would be thrown away upon them; but these are nothing so extensive as is imagined. Through indolence; want of the spirit of improvement; and often through a want of oeconomy, that leaves no surplus

plus of income to promote improvement, every excuse is sufficient to discourage. Try only twenty or thirty acres contiguous to your nearest inclosure; and see if the two or three first years produce will not repay the expence, and leave you a new-created estate; where before a few starved sheep wandered, and tore their fleeces in the furze and briars.

The inclosure of these useless lands is almost the only considerable, and necessary expence. If there be stone on the spot, merely to be had for digging, the walls of stone afford good and enduring fences, though they afford not so agreeable a view as live hedges, where they can be raised. Where quicksets will thrive, they are the most preferable fence, when fenced with posts and rails, of which indeed the expence is large: but perhaps the very furze and thorns, of

which the ground is cleared, may furnish a temporary fence till the quick is raised; two dead hedges in many soils being found sufficient, and the value of the dead wood for firing little diminished; so that there is little more than the additional expence of hedging. If the posts are oak, and rails are good, they will raise a second quick, and considerably lessen the first expence.

The number of acres in the kingdom, absolutely incapable of culture or improvement, are nothing so numerous as has been supposed.

There are extensive tracts of wet and low morassy ground, very capable of being reclaimed by drainage, that are in their nature deep and rich in soil, and would soon be converted into excellent pasturage. In many places, nine foot dykes, drawn to the most dependent part, would at once serve to fence and drain them.

Many

Many of our downs, by saintfoin have already undergone an amazing improvement, and afforded a specimen of what might be done on thousands of acres similar in quality, if a love of agriculture, and a zeal for improvement animated their owner. I need not add, how much nobler, and more self-satisfactory an employment of their revenues this would prove to our nobility and gentry, than wasted in dissipation, elections, or the deleterious air of London.

Our forests and chaces are still vast, where little valuable timber is raised, or the very inconvenient distance from water-carriage renders it almost useless: there do I wish to see the habitation of industry rise, and the fields thronged with husbandmen.

I wish not to destroy our plantations, but to improve them. I groan to see our woods immaturely fall, to satisfy a gaming:

gaming debt, or support the equipage of extravagance. I venerate an oak: I would not have a sapling wantonly destroyed. Fence out and plant in the most eligible situations a part for future navies: the neglect of posterity is mean selfishness. Let it be the tenure on which the lands are holden, to raise useful timber to maturity, according to the proportion of the inclosed chace or forest.

Near the metropolis, where lands are, from their local situation, so peculiarly valuable, improvements of the wastes are especially desirable. How many thousand acres, within a short distance of London, of good soil, and capable of the highest cultivation, now produce scarce any thing worth mentioning, either to the crown or the community, affording a scanty subsistence to a half-starved horse or cow, and

and a place of concealment for banditti and deer-stealers?

The public would immediately feel the vast benefit resulting from such improvements; and, in our present exhausted state, some efforts of this kind appear to promise more, in support of the nation in strength and credit, than any other scheme that hath been yet attempted. It would greatly tend to prevent the emigration and depopulation so much complained of, by providing abundant employment for the poor: if a comfortable provision could be found at home, men would be no longer induced to seek it in distant countries. The increasing population would necessarily increase the home-consumption of all manufactures, and afford work to every different trade. The revenues of the landed gentlemen would receive a considerable increase, and the revenues and credit of the nation

tion rise in proportion to the increasing cultivated property of the individuals.

This is no visionary scheme, or impracticable speculation. If the legislature opened the way, and a few public-spirited men set the example, the progress would soon be rapid.

The greatest obstruction I see in the way, is the tythe-laws as they at present stand; which is so discouraging a tax upon all improvements of this kind. But I cannot entertain so bad an opinion of my brethren, as not to suppose they would be willing, if it was judged necessary, to forego something of their legal rights, when they were sure also to be gainers themselves in the issue. Whether a portion of the land be allotted to them, or a suitable acknowledgment on such reclaimed lands, according to their quality and produce, should be made; in either case they would receive something, where

where they before had nothing; and though it should be less than a tenth of the improved produce, it might be as much as the land could afford, consistent with the expence of reclaiming and culture, and be ultimately to them so much clear gain.

ESSAY II.

ON THE PRESENT IMPROVED STATE
OF THE COUNTRY.

WHILST gloomy politicians, brooding over misery, are foreboding the nation's approaching ruin, lamenting her decay, and pretending to demonstrate our fearfully retrograde motion to want, depopulation, and subjection; the observations, which have occurred to me on the subject preceding, respecting agricultural improvements, have convinced me of the folly and falsehood of these predictions. That our national affairs have been for some time, through the folly of our rulers, most disagreeably circumstanced, and our credit extended to an alarming height, may be admitted; yet, on a view of the kingdom in general, and every county which

I have

I have passed through, I see a general face of plenty, and I may add peace, amidst the storms which thicken around us.

It is a fact, obvious to every man who will be at the pains to examine, that the face of the country, from the north of Scotland to the Land's End, is visibly improved and improving; the husbandry better—the produce of the land increased—the farm-houses superior to what they were, in neatness, conveniency, furniture—the utensils of husbandry more excellent—the inhabitants better fed—better clothed—better taught, than formerly; new erections of houses, barns, and farm-yards numerous, on commons that never before yielded a shilling an acre; *many millions* of money laid out in agricultural improvements; and the general value of landed property in an amazing proportion advanced, (though in our present exigencies

exigencies the value of land hath no doubt diminished;) provisions scarce ever cheaper or more plentiful; the wages of the poor increased—a sure sign of an increasing demand of labour, and consequently their circumstances rather improved.

Not only among the great, but down to the lowest of the people, every man of reading and observation must see an abundance of luxuries now general, unknown to former times; a proof that even the poorest can afford themselves more than absolute necessities: and to this general indulgence in foreign imports, now scarce counted luxury, but common necessities, because in common use, do I impute heavier parish taxes; a demonstration to me, not of increasing poverty, but of a deluge of wealth.

How many thousand day-labourers are seen with watches in their pockets,

silver

silver buckles in their shoes, silk handkerchiefs in their pockets, and good broad-cloth on their backs; whilst their wives and children eat white bread, and regularly drink tea and sugar once or twice a day! The lowest of our labourers earn from six to eight or nine shillings a week, on an average, and the manufacturers often more; whilst the chief articles of subsistence, bread, meat of every kind, malt, butter, cheese, are remarkably moderate, and below the average of former times.

The improvements also of our roads and navigations are striking evidences of national prosperity, amidst our very heavy national burdens; and the embellishments of our gentlemen's seats, in new structures, laying out their grounds, and elegancies of furniture, demonstrate the general affluence of the owners, however many may be found imprudent or extravagant.

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The very difficulty and expence of recruiting our fleets and army, is a proof that the comforts of life, within the reach of the common people, are such as to engage them to put a higher price on their services: did even our manufactories universally suffer, as is by some pretended, in so alarming a manner, this would not be the case.

In an obscure village, where I live, no less than three news-papers are taken in weekly by the common people; the day-labourers contribute, and amuse themselves with politics. I mention this as an anecdote, that implies some improvement of their understanding and circumstances.

Our great towns are amazingly improved in buildings, streets, paving, lights, and whatever can contribute to comfort and convenience of living; and the country ones proportionably ameliorated in appearance, neatness,

and comfort : Can these be symptoms of national ruin and decay?

Innumerable other instances of our internal wealth and prosperity might be produced, as unequivocal proofs that this nation is neither on the precipice the gloomy apprehend, nor declining with the rapidity which false patriots pretend to lament. We want only true patriotism, to call the latent powers into act, and direct our abilities with an intrepid and intelligent hand ; and then we need not fear the number or power of our enemies. Our real misery is, that we want hearts more sensible of our mercies, and vital Christianity to improve them aright.

ESSAY

ESSAY III.

ON THE POOR.

THE heaviness of our present parish rates affords general occasion of complaint; especially as the occupiers of lands and houses, whose rents have been considerably raised of late years, bear the chief share of this burden.

The luxury which increasing private wealth hath introduced, like a deluge hath overspread the land, and, to an attentive observer, will be equally visible in the lowest as in the highest ranks of society.

Whatever remains after the necessities of life are provided for, will be disposed of in indulgences; the commonness of which renders them the general object, as few of the lower ranks

ranks of life, who live from hand to mouth, think of saving; and where luxury thus reigns, want must in many cases ensue.

It can easily be remembered, within the compass of no very aged man's recollection, when barley bread, with milk, and cheese, was the general food of the poor; when a tea-kettle was only to be found with the lady of the manor; and sugar, snuff, tobacco, and other foreign luxuries, not introduced into the houses of the vulgar. At present, the poorest people in this place eat wheaten bread, as white as mine; not a family is known, no not even those maintained at the expence of the parish, who do not drink tea and sugar, increased as their price hath been, once, yea many twice a day, with bread, and usually butter too—nay toast;—many take snuff, smoak, and chew tobacco—

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more

more in value than would afford them one or two days provision every week.

The number of ale-houses also, established in every parish and village, is a proof how much can be afforded by the poor in indulgence; for by them are they chiefly supported.

I mean not to reflect upon, or condemn the labouring poor; I wish cordially their comforts encreased, and their abilities to procure them more abundant. The object I have in view in mentioning these things, is to lay open the source from whence the distress of our poor, and the increase of our parish rates arise, and to suggest the most practicable and humane methods of alleviating them.

As the price of labour was much lower, and the mode of living was universally much less expensive formerly, the *same* number of poor will now occasion

occasion a proportionably greater expence; their relief being ministered according to the present proportioned price of labour, and the expence of living generally admitted in the lowest stations of life: and, as bad habits grow upon us, and one indulgence makes way for another, more reduce themselves to want; so that both their number and necessities are increased. If the nation had continued as poor as it was an hundred years ago, our poor-rates had been as low as they were at that time. Heavy as they are at present, they bear but a small proportion to the increased value of the land, and the abilities of those by whom they are generally paid. Perhaps a few are obliged to contribute their quota, who, it is admitted, can but ill afford it, having from the produce of a small patrimony scarce enough to support themselves; yet, take it throughout the

nation, the observation will be found confirmed, that however increased the sum may be, required for the maintenance of the poor, the ability to pay it is increased in a greater proportion: this should at least silence our murmuring. It is not merely an act of charity, but of justice, that the aged who are past their work, the widow, the orphan, the diseased, and the infirm, should share a portion of the general stock; to the increase of which the former have contributed by their labour; and the latter may grow, and recover strength to repay the expence bestowed on them.

How to alleviate the burden has been often the subject of consideration; and many ways have been devised, none of which seem hitherto to have answered the end proposed. Houses of industry have been erected, and, it is said, in some places with success; some
parishes

parishes have workhouses of their own, and others farm out their poor, without obtaining much alleviation of the burden. I confess I am no great friend to general workhouses, and less to let the poor be under the tyranny of a master, whose gain must be their distress. I am a friend to humanity, and an advocate for the poor. I mean not to increase their pay or numbers; I wish to lessen the burden of them, whilst I desire to add to their real comforts. If any hints here suggest I may contribute to this end, I shall be happy.

I have considered attentively Mr. Gilbert's intended bills: I doubt not they are the produce of much investigation, and flow from a heart that feels for human kind; but I confess they strike me not as adequate to the distress; and threaten in the execution, I fear, to increase, instead of diminishing,

the parochial expences. I speak, however, with suspicion of myself; perhaps I may not be a judge of their operation. He will, I am sure, be pleased I speak my own convictions.

I esteem it a real hardship, for any poor person to be torn from his village, his relations, his friends, however low their circumstances may be: they have the same feelings with their superiors, and must dread the separation as equally painful. I wish them therefore, if possible, not to be removed from their native cottage, or the roof of their near relatives. I am much mistaken, if the expence necessary for their maintenance elsewhere, would not, with a little attention to a proper disposition of the aged and infirm, be sufficient for them at home.

It is indeed true, that to deter them from making application for relief, a parish house stands *in terrorem*, and reduces

duces some to suffer real want, rather than seek assistance; but no man of sensibility can endure this, the most generous spirits being here the greatest sufferers. Many of them would be content with a less weekly allowance, than is necessary to maintain them at a distance; and, if they were permitted to provide for themselves, would struggle hard to make it do, rather than go into a workhouse; or, with the parish provision, some relation would shew them, if aged, orphan, or infirm, more tender attention, and render their lives more comfortable than a stranger would.

The living in a well-regulated house of industry may probably be comparatively better, as numbers tend to lessen the general expence; but if, with a scantier measure of provision, a poor man feels himself happier amidst his friends, in his own, however wretched,

abode, why, without very strong necessity, deny him that indulgence?

As the justices of the peace have a power, on complaint, of ordering the parish officers to relieve a complainant, the facility with which I have observed such an order is obtained, is the cause of much unnecessary burden to parishes. I have that confidence, that five different persons, witnesses to the real wants of the petitioner, would not be so destitute of truth and humanity, as to concur in falsehood or oppression. I think, therefore, if the minister of the parish, the church-wardens, and overseers of the poor, concur in certifying that such a sum is a sufficient relief for any poor person so complaining, the justices shall award them no more, without the most convincing evidence of the necessity.

Though I probably am unable to suggest an adequate remedy, I wish to

see

see the too common state of vagrancy suppressed. Perhaps every beadle or constable should have a mulct imposed upon him, who on complaint did not immediately convey such vagrant, or common beggar, before a justice of peace; or perhaps something more summary might be enacted, that the minister, if no justice of the peace resided in the parish, should have power to put such vagrant in the stocks, or the constable, at his order, to whip him out of the bounds of the parish: any punishment of which kind, steadily executed, would quickly put a period to these illegal plunderers of the public charity.

Within the circle of my observation, the burden of the poor is chiefly felt in winter, and not so much from the absolutely infirm or helpless, as from those who want employment, or from the

nature of their occupations, which renders them incapable of earning their livelihood during the severity of cold, snow, or rain, are obliged to seek relief for themselves and families; who, if they were able to work, would need no other support but what their own labour would procure.

I should suppose that some of the operations on the raw materials employed in the coarser linen or woollen manufacturies, where little skill, and mere labour was required, would afford sufficient employment for persons of all ages, in beating, carding, spinning, or the like.

The overseers of the poor might provide a common room, where several might work together, and have one fire and candle. They should purchase the raw materials on the parish account, deliver them to the poor employed, and
when

when manufactured, sell them for their benefit, reimbursing the parish the original cost, and give them the full value of their work; till which time a part only of their earnings should be advanced to them, not exceeding the parish allowance if they had not been employed. This would be an encouragement to the workers to diligence, as they would receive proportionable advantage. The parish could be no losers, as they would have always security for the repayment of the money advanced; and the loss of the interest of the sum employed would be but a trifle, and an inducement to diligence, as they who did most work would reap the greatest advantage from it.

As the earnings of such persons would after all be inferior probably to what they could get in spring, summer, and autumn, each would return to their

several occupations, and the temporary stagnation of employment in winter be effectually relieved by this means. No man or woman in such case, who could work, would dare apply for relief through idleness, and every pretext would be removed of want of employ, which is now the general plea. This would oblige them to earn the bread they eat, or want it: and nothing is so conducive to the public good, or so productive of benefit to the poor themselves, as accustoming them to habits of industry; and making them feel, that if any will not work, neither should he eat; which is not only justice and reason, but the voice of Scripture, and the language of real charity.

With us, I think this matter is very practicable, as the woollen manufacture near us affords work, and our men can generally spin, having been brought up

to it from children: at present they are often employed, in winter, to dig stone on the parish account, when it is not wanted, and do very little for their wages. The poor women and children can spin but a small pittance, and very uncomfortably for want of fire during the severe weather; and when it is done, two or three intermediate persons gain a profit on their work: but if the materials were provided at the best hand, and sold, when manufactured, to the best advantage, it would make a considerable balance in their favour, more than sufficient, I should think, to pay for the firing that would warm the room, and make them all comfortable; fire at that season being as necessary almost as meat.

This is an age of benevolence, and many gentlemen and ladies are, to their praise, abundant in liberalities. In winter

ter especially they feel for the necessities of the poor, and distribute meat, firing, money, and cloaths; all which, but the last, afford merely a temporary luxury, and quickly leave them as wretched as ever. Were the same sum employed in furnishing the poor with the means of better providing for themselves, in some such manner as I have mentioned above, and engaging them to be industrious, from the superior advantages which would accrue to them by their work, I am persuaded the beneficial effects would appear; the comforts of the poor be considerably increased, the parish rates diminished, and habits of industry more universally acquired.

The expensive litigations about the settlement of the poor might be avoided by some more summary decision, by two or three of the neighbouring justices,

tices, who could have no interest in the dispute, without the intervention of fees, or lawyers; and, though I doubt not in general law and justice would be impartially administered, yet, should there be, in an instance now and then, any cause of complaint, the very aggrieved parish would probably suffer no greater loss than is now often incurred after a successful litigation; and on the whole a vast expence would be saved to the community.

The houses of correction at present are grievous nuisances, and, so far from promising any reformation, tend directly to the greater corruption of manners. The very end of the law therefore, in committing the petty offenders, the wilfully idle, or vagrant thither, being defeated, either some general plan of better regulation should be adopted for them, or some other mode

fallen

fallen upon of punishing such offenders in their several parishes, and compelling them to work or starve; which, if vagrancy was effectually prevented, might, I apprehend, be done without much difficulty, as, if they found no harbour or relief abroad, and no help at home, hunger would compel them to labour, as the gallows deters them from robbery.

F I N I S.

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